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ABSTRACT

A study examined factors related to the participation of Pennsylvania agricultural education teachers in professional development activities. Specifically, it sought to describe the relationship or differences between participation in professional development activities, professional attitude, and 22 selected demographic factors. A questionnaire was developed and mailed to the population of 291 agricultural education teachers listed in a Pennsylvania directory. The instrument gathered data in four areas (professional development participation, professional attitude, demographics, and perceptions of professional development activities) from the 215 teachers (74 percent) who replied. Professional attitude and 7 of the 22 demographic factors had a significant relationship to teacher participation in professional development activities. Professional attitude had a positive relationship with participation. The following selected demographic factors also showed a positive relationship: former Future Farmers of America membership, length of teaching contract, financial contribution of a teacher's local school district toward inservice training, financial contribution of a teacher's local school district toward graduate credit, and having children who are teachers. The only factor showing a negative relationship to participation was having a full-time summer job away from the school in addition to teaching. (The study includes 66 references, letters of correspondence, final questionnaire and code book, and 36 tables.) (Author/KC)

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FINAL REPORT

FACTORS RELATED TO THE PARTICIPATION OF PENNSYLVANIA AGRICULTURAL EDUCATION TEACHERS IN PROFESSIONAL DEVELOPMENT ACTIVITIES

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The Graduate School
Department of Agricultural and Extension Education

FACTORS RELATED TO THE PARTICIPATION OF PENNSYLVANIA AGRICULTURAL EDUCATION TEACHERS IN PROFESSIONAL DEVELOPMENT ACTIVITIES

A Thesis in
Agricultural Education
by
David E. Hall

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Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Doctor of Philosophy

August 1990

We approve the thesis of David E. Hall.

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ABSTRACT

The primary purpose of this study was to examine factors related to the participation of Pennsylvania agricultural education teachers in professional development activities. Specific objectives dealt with describing the relationship or differences between participation in professional development activities, professional attitude, and 22 selected demographic factors. A questionnaire was developed and mailed to the population of 291 agricultural education teachers as listed in the Directory for Agricultural Education in Pennsylvania 1989-90. The instrument gathered data in four areas: professional development participation, professional attitude, demographics, and perceptions of professional development activities. A 73.9 percent usable response was received.

Professional attitude and seven of the 22 selected demographic factors had a significant relationship to the participation of Pennsylvania agricultural education teachers in professional development activities. Professional attitude had a positive relationship with participation. Six of the seven selected demographic factors also showed a positive relationship. Those six included: former FFA membership, length of teaching contract, financial contribution of a teacher's local school district toward Professional/Technical Education Institute, financial contribution of a teacher's local school district toward inservice, financial contribution of a teacher's local school district toward graduate credit, and having children who are teachers. The only factor to show a negative relationship to participation was having a full-time summer job away from the school in addition to teaching agricultural education.

A multiple regression equation revealed three of the factors that previously showed individual significance and six new factors interrelated in a significant fashion with the participation index. This further emphasized the complex nature of this research.

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Chapter 1

INTRODUCTION

Background and Setting

Early in the last decade, the National Commission on Excellence in Education (1983) issued a report to the nation and the Secretary of Education. This highly publicized document, A Nation at Risk, caused emotion and concern about the educational system of the country. The United States of America, a nation that views itself as the world's leader in almost everything, was finding that it had been challenged in many aspects of its superiority. The country that was unquestionably superior in commerce, industry, science and technological innovation now faced competition in all of these areas throughout the world. The report addressed one part of a multidemensional problem: the crisis caused by the erosion of the country's educational system.

The commission praised the historical accomplishments of schools and colleges and gave credit to education's role in placing the country in a position of prominence and power in the world. However, this praise was quickly followed by the alarming conclusion that currently the nation is at risk. The crumbling effects of an eroding educational system were contributing to a mediocrity in our society that threatened the future of the nation. The National Commission on Excellence in Education (1983) stated, "What was unimaginable a generation ago has begun to occur—others are matching and surpassing our educational attainments" (p. 5).

The commission, after completing an 18 month study of our nation's commitment to education, reported numerous findings dealing with the educational system. Specifically, their findings regarding teaching concluded:

1. Teacher preparation programs need substantial improvement

2. More and higher academically inclined students need to enter the profession
3. The professional working life of a teacher is unacceptable

Since the issuance of A Nation at Risk, colleges and universities have taken action designed to improve the quality of undergraduate students being certified to teach in public schools (American Association of Colleges for Teacher Education, 1987; The Holmes Group, 1986; National Governors' Association Center for Policy Research and Analysis, 1986). These steps have included:

1. Increased entrance requirements to education certification programs
2. Longer undergraduate programs requiring more subject-oriented credits
3. More and earlier field-based instruction, commonly called student teaching
4. Standardized professional testing to determine certification eligibility

Hopefully these changes will contribute to improved performance of people entering the teaching profession. But what changes are occurring to the vast majority of teachers already established within the teaching profession? How are current teachers improving their performance? How are they to develop professionally?

Professional development activities are typically viewed as a means by which teachers may remain current regarding technological changes within their discipline and pedagogical changes within their profession. Professional development activities are the career counterparts to a teacher's preservice education program. Bishop (1977) described the importance of professional development by indicating the urgent need to give inservice a higher priority, arguing that professional development activities need to be routine for all personnel in the school system and an integral part of the career experience. Bishop suggested that participation in professional development activities is important, stating:

> Staff development and program improvement activities are the career counterparts of pre-service education. And as such, they provide for change, renewal, quality education, and professional competence. What they seek is an affirmative response to the changing social and political

> scene and the criticism that curricula are not relevant, that professionals are not adequate, and that educational institutions represent lag rather than progress. Such efforts are important ingredients of the continuing curriculum for every career teacher and supervisor. (p. 1)

Professional development is more critical to teachers now than ever before. Ryan (1987) indicated declining enrollments, educational changes, teacher shortages in some parts of the country, and low teacher attrition rates were the major forces behind the need for professional development programs. Ryan's conclusions, although about teachers in general, parallel the posture of agricultural education teachers. Program enrollments are down nationwide in agricultural education. Changes in the agricultural education curriculum are more drastic now than ever before with the emphasis on an agriscience base, the infusion of the international market place, and the need for global awareness of agricultural production. Many areas are experiencing shortages of agricultural education teachers.

Teachers must have a means to obtain professional and technical updating to stay current with technological and pedagogical changes in their field. Houle (1980) concluded that professional people became established in their professions fairly early in adulthood and therefore have a definite need to remain current with the new developments within the profession. Professional development is not an easy matter to facilitate. Houle (1984) further stated, "The heart of adult education lies in the ability of its program designers to perceive all of the relevant elements in situation after situation and to take them into account in planning and carrying out learning programs" (p. 218).

Professional development activities occupy a considerable amount of teachers' time and cost the tax payers a tremendous amount of money. Ryan (1987) indicated that up to two billion dollars is spent annually in the United States on professional development activities for teachers. Ryan emphasized the reason for quality inservice education, indicating that besides the huge sums of money, a great deal of energy is expended toward professional development activities. Preparation, delivery, and participation in such activities also results in significant levels of disruption of students' educational time as teachers are often taken away from their classes to participate in professional development activities.

While there is a considerable body of research to substantiate the need for teachers to participate in professional development activities (Boshier & Collins, 1985; Darkenwald & Valentine, 1984; Schuttenberg & Tracy, 1987), most educators focused their research efforts on determining who participates in continuing education or professional development activities (Darkenwald & Merriam, 1982; Oddi, 1986).

Other researchers were concerned about teachers' motivation to participate in professional development activities. Wright (1985) stated:

> Concern about the quality of educational experiences being offered in schools brings with it an increasing awareness of the need for carefully planned professional growth opportunities for teachers throughout their working lives. Further investigation, moreover, brings the realization that planning activities which may result in professional growth of teachers is one thing, but fostering meaningful participation by teachers in those activities may be an even greater task.
>
> There appears to be a reticence among teachers to become involved in many activities which have the potential to provide opportunities for their professional growth. This may be because of their perception that extra work is involved, because of unfavorable past experiences or because of a lack of feeling of ownership. Whatever the source of the reluctance, responsibility for motivating teachers toward professional growth and, hopefully, greater effectiveness lies, at least in part, in the hands of the school administrator. (p. 1)

Wright's study focused on the incentives that would motivate teachers to participate in professional development activities. Analysis of the data revealed that some incentives usually found in professional development plans were not rewarding and proved to be poor motivators. However, the opportunity for increased self confidence, a sense of achievement, the challenge of the task itself, and the opportunity to develop new skills and leadership were found to be intrinsically motivating factors and related positively to teacher participation. Wright encouraged administrators to recognize those factors related to professional development and include them in the professional development plans as a means of rewarding teacher participation.

Byrne (1983) examined inservice education as a part of teacher professional development from the viewpoint of an assistant superintendent, cautioning other administrators that teachers have a right to complain about professional development activities that do not meet their professional needs. Many programs are perceived by teachers to be inflexible and unrelated to their apparent needs in dealing with day-to-day realities in their classrooms. Byrne summarized the study by stating:

> In summary, teacher education must be planned, planned about the seminal issues that figure in effective classroom instruction and planned about subjects that will positively influence long-range professional growth. The connection between teacher evaluation and inservice is obvious and its omission in any school system invites a serious charge of administrative oversight and faulty coordination. (p. 6)

Ducharme and Kluender (1986) tried to capsule qualities of good teachers in good schools. They indicated that teaching must approach an artful image and that professional development is necessary to achieve that level of teaching. They cautioned that considerations need to be given to younger faculty beyond programs for first-year teachers, internships, and mentoring. Attention must be given to planning a professional development program which provides a continuum of activities for teachers as they continue to grow and develop as a professional throughout their careers.

Need for the Study

Nationally, leaders in agricultural education are concerned with the quality of teachers instructing agriculture within secondary schools. The National Research Council Committee on Agricultural Education in Secondary Schools (1988) conducted an extensive and lengthy assessment of the current condition of agricultural education in the United

States. After public hearings, committee meetings, school visitations and gathering considerable qualitative and quantitative information, they issued a series of recommendations. The need to increase the participation of agricultural education teachers in professional development activities was apparent by their final recommendation:

> Teacher preparation and in-service education programs must be revised and expanded to develop more competent teachers and other professional personnel to staff, administer, and supervise educational programs in and about agriculture.
>
> Colleges of agriculture, particularly in land-grant universities, should become more involved in teacher preparation and in-service education programs, curriculum reform, and the development of instructional materials and media. The committee recommends that land-grant universities establish a center for curriculum design and personnel development to accomplish these purposes. The committee further recommends that the U.S. Department of Agriculture encourage the achievement of this goal by providing challenge grants to universities initiating new linkages between departments in colleges of agriculture and agricultural education in the public schools. (p. 6-7)

In Pennsylvania, the legislature has taken a leading role to assure that teachers participate in professional development activities by mandating professional development programs for all new teachers in the commonwealth. Former Pennsylvania Secretary of Education, Thomas K. Gilhool (1988), wrote of the new state professional development guidelines:

> Governor Robert P. Casey has set the purpose: "so to improve teaching and learning in the schools of the Commonwealth that no child is left behind." He has challenged "teachers and students alike not to be average, but to be great."
>
> In Act 178 and by Chapter 49 regulation, the General Assembly and the State Board of Education have given us the opportunity, indeed the requirement, to fulfill the Governor's charge and challenge.
>
> The great purpose of professional development is to evoke in each child knowledge, a confident curiosity, a love of learning, an appreciation of values, and an ability to analyze and seize changing and often complex opportunities in a life of work and citizenship. By achieving that purpose, we also raise our profession--historically the most revered and today the most urgently important profession--to a plane at least the equal of other professions in the respect and rewards it commands. (p. 1)

However, Act 178 refers only to new teachers and does little to address the professional development needs of experienced teachers.

The Pennsylvania State University is the only institution in Pennsylvania approved for certification in agricultural education; therefore, most agricultural education teachers have traditionally looked to Penn State to provide statewide professional development activities. Over the last several years the participation of Pennsylvania agricultural education teachers in professional development activities has been a concern by leaders in agricultural education in the commonwealth. Low teacher participation in professional development activities does not encourage personnel from the Pennsylvania Department of Education or from the Department of Agricultural and Extension Education at The Pennsylvania State University to spend significant amounts of time planning and facilitating professional development activities. For example, data on the average participation for the last seven years at the annual Professional/Technical Education Institute held at The Pennsylvania State University suggest that only about 42 percent (42.46%) of the agricultural education teachers participated in the activity (Table 1). The Professional/Technical Education Institute serves as the single statewide conference for agricultural education teachers and is jointly planned, conducted, and sponsored by the Pennsylvania Department of Education; the Department of Agricultural and Extension Education, The Pennsylvania State University; and the Pennsylvania Vocational Agricultural Teachers' Association. According to Scanlon (1986), the institute is designed to address professional and technical needs of all agricultural educators of Pennsylvania.

In the spring of 1988 a High Tech Workshop, sponsored for agricultural education teachers as part of the outreach program from the Department of Agricultural and Extension Education at The Pennsylvania State University, had to be cancelled because of low enrollment. Although the project would have paid for instructional materials, lodging,

Table 1. Participation in The Pennsylvania State University Professional/Technical Education Institute by Pennsylvania Agricultural Education Teachers.

Year	Number of PA Ag. Ed. Teachers	Number of Participants	Percentage of Teachers Participating
1982-83	348	143	41.09
1983-84	339	119	35.10
1984-85	330	131	39.70
1985-86	325	140	43.08
1986-87	316	146	46.20
1987-88	307	134	43.64
1988-89	291	145	49.82
Seven Year Average Participation Percentage			42.46

Data collected from Directory for Vocational Education in Agriculture in Pennsylvania 1982-83, Directory for Vocational Education in Agriculture in Pennsylvania 1983-84, Directory for Vocational Education in Agriculture in Pennsylvania 1984-85, Directory for Vocational Education in Agriculture in Pennsylvania 1985-86, Directory for Vocational Education in Agriculture in Pennsylvania 1986-87, Directory for Vocational Education in Agriculture in Pennsylvania 1987-88, Directory for Vocational Education in Agriculture in Pennsylvania 1988-89, and personal communications with M. E. Johnston, Conference Coordinator, 306 Agricultural Administration Building.

meals, and salaries for substitute teachers, lack of participation in the activity mandated its cancellation.

Over the last several years, numerous inservice offerings have been conducted through the Outreach Committee of the Department of Agricultural and Extension Education at The Pennsylvania State University with less than desirable enrollments. These offerings have been taught by a variety of instructors covering a multitude of subject matter. The classes varied in length and follow-up assignments and have been conducted at various sites across the commonwealth. Many of these offerings have experienced low participation with only a handful of teachers in attendance. Occasionally the offerings were cancelled because of no enrollment.

Obviously there is concern about the potential of professional development activities to improve teaching when a low percentage of teachers participate. Larger participation is desirable and would undoubtedly increase the potential impact of professional development activities. In order to increase participation, factors that influence teachers to participate in professional development activities need to be identified. This study identified factors that influenced the participation of Pennsylvania agricultural education teachers in professional development activities.

Purpose of the Study

The major goal of this study was to identify factors related to participation in professional development activities. Specifically, the objectives of this study were:

1. To describe the relationship between professional attitude and participation in professional development activities.

2. To describe the relationships or differences between selected demographic factors and participation in professional development activities.
3. To describe the relationships between selected demographic factors, professional attitude, and participation in professional development activities.

Limitations of the Study

Kerlinger (1973) and Tuckman (1978) suggested that a descriptive study of this nature, based on a questionnaire response, has the following two potentially serious limitations:

1. Percentage of returns
2. Measurement error

Kerlinger (1973) wrote of serious limitations based on general poor responses to mail questionnaires. Returns of less than 40 percent are considered common and higher than 50 percent are considered rare. A low response rate makes generalizations hard to rationalize. Follow-up on nonrespondents with a second questionnaire was suggested to increase the percentage of returns.

Kerlinger also expressed concern about measurement error because of the inability to check the responses given to a mailed questionnaire. Careful design of the instrument with adequate review was advised to limit the amount of measurement error.

Definitions of Terms

The following is a list of the general operational definitions used for selected terms contained within this study:

Agricultural education teacher in Pennsylvania: Any individual listed as a teacher in the Directory for Agricultural Education in Pennsylvania 1989-1990.

Deterrent: A factor that discourages and/or prevents participation.

Factor: An attitude, cause, or component that influences participation.

Leaders of agricultural education in Pennsylvania: This group includes faculty of the Department of Agricultural and Extension Education, College of Agriculture, The Pennsylvania State University; and the Agricultural Education Advisor, Pennsylvania Department of Education.

Participation: Paying dues to organizations, registering for and attending the professional development activity, or reporting regular reading of a professional/technical journal.

Professional development activity: Any course, class, seminar, workshop, organization, institute, or professional/technical journal offered or made available for agricultural education teachers. The major goal of these activities is to address both the professional and technical needs of the agricultural education teachers of the state of Pennsylvania.

Professional/Technical Education Institute: A gathering of Pennsylvania agricultural education teachers, usually for three days during the summer, normally held at the Penn State, University Park campus for the purpose of professional/technical development. The institute is jointly sponsored by Pennsylvania Department of Education; Department of Agricultural and Extension Education, The Pennsylvania State University; and the Pennsylvania Vocational Agricultural Teachers' Association.

Chapter 2

REVIEW OF LITERATURE

Introduction

The review of literature was divided into three sections. The first section dealt with demographic factors that might have impacted upon participation in professional development activities. The second section was devoted to literature dealing with attitudes and their effects on teachers' participation in professional development activities. A third section dealt with activities that make up professional development. A summary of the literature review concludes this chapter.

Demographic Factors

Demographic factors are normally defined to be characteristics of human populations such as age, gender, educational level and location of home. For the purpose of this study, the researcher also considered socioeconomic factors, such as marital status, number of children and outside employment as demographic factors.

A preliminary literary review identified many studies dealing with factors that deter participation in professional development. Understanding which factors deter a large percentage of agricultural educators from participation in professional development activities is a logical first step in focusing on the factors that affect participation in professional development activities.

Scanlan and Darkenwald (1984) conducted a study identifying deterrents to participation in continuing education. Their study was based on the premise that deterrents of participation in professional development activities can be identified, and that the construct was multidimensional with different relationships of factors contributing to the explanation of variance in participation. Results from their study indicated there were six groups of significant factors or deterrents to participation. Those six included:

1. Disengagement
2. Lack of quality
3. Family constraints
4. Cost
5. Lack of benefit
6. Work constraints

They cautioned that the results of their study could not be generalized. They felt that although many of the deterrents to participation seemed universally valid, others obviously were not. To confirm the Scanlan and Darkenwald study of 1984, Darkenwald and Valentine (1985) conducted follow-up research finding similar deterrents to participation. They identified six factors as significant in deterring professional development participation:

1. Lack of confidence
2. Lack of course relevance
3. Time constraints
4. Low personal priority
5. Cost
6. Personal problems

Darkenwald and Valentine (1985) agreed with the original Scanlan and Darkenwald (1984) study that the deterrent factors to participation are multidimensional in nature. They suggested that the multidimensional aspects included situational factors such as time constraints, cost, and personal problems as well as institutional factors such as lack of course relevance. Lack of confidence was labeled as a dispositional barrier. They concluded that sociodemographic variables do serve as deterrents to participation in professional development activities.

A study conducted with physical education teachers substantiated the factors identified by Darkenwald and Valentine (1985) and Scanlan and Darkenwald (1984) for participation in particular professional development activities. Zakrajsek and Woods (1983) concluded that time was a major deterrent to participation in professional development activities in as much as teaching and coaching usually already exceed a normal 40-hour week. They reported that concern was expressed by local school districts about releasing teachers for professional development conferences because of the amount of time away from their students. Personal expense was cited as an additional major cause for nonparticipation. Zakrajsek and Woods labeled the demographic factors that emerged from their study as deterrents to professional development. They also alluded to professional attitude when they posed the following set of questions:

> On the surface such reasons may seem justifiable, but can a lack of professional commitment be so easily rationalized? If I don't support my associations, who will?...Am I a teaching specialist or can anybody do my job? If I am a specialist, what obligations are imposed?...What do I do to remain current with my profession? What have I done to advance the cause of my profession?
>
> It just might be that our freshman introductory course in professional preparation needs revisiting--or rewriting. (p. 67)

Many demographic factors can be considered as personal life factors. Relationships with co-workers, marital status, and interaction with children are all a part of demographics. Some studies have looked at the effects of personal life factors on professionalism. Pajak and Blase (1989) conducted a study of the impact of teachers' personal lives on professional role enactment. They identified 13 personal life factors that teachers viewed as affecting their professional performance. These personal life factors, or demographics, were categorized into three broad classifications showing significance with professional performance. These classifications included interpersonal relationships, personal characteristics, and socioeconomic factors.

Wimpelberg (1976) suggested participation in professional development activities was affected by a variety of demographic factors. Some of the factors had positive effects, while some were identified as being negative. The demographic factors identified by Wimpelberg included:

1. Time
2. Money
3. Social identity
4. Prestige
5. Professional learning

In summary, research suggested a variety of demographic factors has been found to affect participation in professional development activities. Therefore, based on the results of the literature review, the following list of demographic variables should be included in this study:

1. Family, both spouse and children
2. Costs or personal expenses
3. Time constraints, especially coaching and other outside involvement
4. Gender
5. Work constraints which could include number of teachers per department, length of contract, and experience level
6. Place of residence
7. Degree status and pursuit of advanced degrees
8. Former student memberships in related organizations

Professional Attitude

For decades, scholars have debated the existence of a relationship between attitude and behavior. The evidence of such a relationship is very controversial depending on the researcher quoted. Liska (1975) wrote an entire book explaining the extent to which attitude impacts on behavior. Social scientists recognize that in western cultures there is often an inconsistency between attitudes and actions, yet they point to the role of attitude in explaining behavior. They frequently assume a consistent relationship between attitude and behavior.

Liska (1975) resolved convictions about the relationship between attitude and behavior by summarizing:

> In conclusion, the research seems to suggest that a substantial relationship between attitude and behavior exists, but that the relationship is frequently masked or altered by the effect of other methodological or explanatory variables. Upon the control of such other variables, studies are reasonably consistent in reporting a substantial relationship; e.g., correlation coefficients range from .10 - .50. While sometimes small in terms of absolute magnitude, the relationship is generally substantial in terms of its proportion to the total explained variance. Exactly how this relationship translates into the relationship between attitude change and behavior change, and exactly what portion of the relationship can be attributable to the impact of attitude rather than the impact of behavior remain problems for future research. (p. 19)

Attitudes are often very difficult to examine, but can be related to consequences or behaviors (Fishbein & Ajzen, 1975). Mitchell (1978), in a book on people in organizations and understanding their behavior, suggested that attitudes are very complex feelings.

> First, *attitude is related to behavior*. Based upon one's attitude toward something, an individual is predisposed to behave in a particular way...Second, *attitude is a unidimensional variable*, and that dimension is tied to one's feelings about the object. The particular feeling is one of favourability or affect or attraction — that is, the degree to which something is liked (a pleasant feeling) or disliked (an unpleasant feeling). Third, *attitude is a hypothetical construct*. It is something which one carries around inside. Its consequences may be observed, but the attitude itself cannot. (p. 78)

Attitude is indeed a source of data that can be used in contemporary research. The idea of cause and effect is not new to science. The ability to look at complications such as attitudes is a very significant part of contemporary social sciences. Kerlinger (1984) expressed convictions about research on attitudes. Indication was given that recognized attitude to be one of the major concepts of contemporary social science. An expressed feeling of extraordinary importance and relevance of attitudes toward modern social research was discussed. Kerlinger concluded the following four reasons to include attitude in modern social science research:

1. Bridge between the person and the environment
2. Bridge between social science and the popular mind
3. Amenable to definition
4. Attitudes measurable

Hall (1968) explored the analysis of professional attitudes by measuring the correlation of various attitudes as they relate to a person's degree of professionalism. A validated professionalism scale was developed. Hall concluded that attitudes were measurable and suggested that the attitudes measured were strongly associated with professional behavior. Further analysis concluded that behavioral data supported validity of the scales and suggested that respondents did indeed practice what they had verbalized.

Snizek (1972) used Hall's (1968) initial work to initiate additional research, further refining the process and suggesting modifications to the original instrument. Snizek concluded that the instrument could be condensed to 25 questions that measure the five theoretical dimensions of professionalism. These dimensions as defined by Hall include:

1. Using the professional organization as a major referent
2. Belief in public service
3. Belief in self-regulation

4. Sense of calling to the field
5. Autonomy

Snizek (1972) drew upon the work of Hall and then streamlined the research without losing the reliability of the instrument. Snizek realized that a shorter scale would be more desirable. There was a growing need for sociologists to appropriately measure professionals attitudes. The shortened version of Hall's original scale adapted itself to easier use within the confines of social research without giving up desired reliability.

Mitchell (1978) indicated the importance of attitudes when talking about the participation of people in organizations. People tend to participate in activities that closely align with their personal attitudes. Mitchell continued to explore the development of attitude and the possible use of attitude as a predictor to behavior. Mitchell (1978) summarized:

> In summary, attitudes are in fact related to behavior. They indicate a personal predisposition to respond in a particular way. They put pressure on the individual. However, other forces can outweigh or counteract this pressure. Sometimes the situation or social norms prohibit us from behaving the way we would like. But the important point is that if these other *external* forces did not exist, the individual would probably behave in line with his or her attitude. Therefore, if we can help to form or change a person's attitude, we can usually influence their behavior. (p. 124-125)

Hutchinson (1976) studied attitudes of members and non-members of a professional organization, concluding that there was a significant difference between the attitudes of these two groups. Hutchinson's research yielded the following six conclusions:

1. Members of the American Vocational Association had significantly different views of some issues concerning professional organizations than non-members. The member group tended to agree more with the following issues than the non-members:
    a. there is a need for state affiliated professional organizations,
    b. professional organizations should take public stands on important issues,
    c. professional organizations should help improve the image of the teaching profession,

   d. professional organizations should become politically active by supporting candidates and lobby activities.

2. Members of the American Vocational Association had significantly more positive views of professional organizations than non-members.

3. Members of the American Vocational Association had significantly different views toward dedication to education.

4. Those teachers designated as "high professional" had significantly different views of some issues concerning professional organizations than those teachers designated as "low professional." The "high professional" group tended to agree more with each of the following issues than did the "low professional" group:
   a. professional organizations should deal directly with the issues of salaries, employment conditions of members, and the image of the teaching profession;
   b. professional organizations should publicly support political candidates and influence educational legislation at the state level; and
   c. professional organizations are of value on the state and local level.

5. Vocational teachers designated as "high professional" had more positive views toward professional organizations than those teachers designated as "low professional."

6. Females had significantly different views than males toward the use of colleagues as a reference group and dedication to education. There was no significant difference found between the views of males and females toward autonomy in education, codes of ethics, and views toward professional organizations. (p. 93-97)

Lawver and Lee (1988) focused their research on the predictors of professional participation by vocational agriculture teachers. They concluded that factors affecting membership in professional organizations could be grouped into three categories:

1. Degree of professionalism

2. Self-perceived importance of organization role and member benefits

3. Teacher characteristics.

Much of the literature reviewed suggested the need for additional studies in the area of professional development participation. Hutchinson (1976) suggested the following specific recommendations as they deal with future studies:

1. Further research is necessary to discover how educators feel about autonomy of their profession.

2. Further research is necessary to discover the relationship between dedication to education as a career and professional organization membership.
3. More knowledge is needed concerning how teachers identify with their colleagues and if this identification is related to their teacher preparation program.
4. Teacher educators should recognize the need for increased emphasis on professional education in the following areas:
   a. the responsibility of the professional to his client;
   b. the responsibility of the professional to society;
   c. the technical literature on learning and the facilitation of learning; and
   d. the role of the professional within his profession. (p. 98)

Lawver and Lee (1988) recommended further studies be done in areas of factors relating to professional development participation. They suggested the need to identify other predictors which might enhance the predictive accuracy for discriminating between active and inactive participants in professional organizations.

Professional Development Activities

Considerable research has been conducted dealing with activities that provide teachers with professional development. McCracken and Newcomb (1984) indicated that a variety of activities were needed to keep agricultural education teachers technically current of rapid changes to the agricultural industry. They were concerned with the specialization of the business and industry of agriculture, as well as the increased technological, scientific, and business orientation.

Limitations should not be put on the types of activities that might lead a teacher to professional growth. Edelfelt and Johnson (1975) argued that professional development activities should include all activities that promote the teacher to higher levels of professionalism. These included activities the teacher undertook individually or those involving the cooperative efforts of several teachers.

Harmon (1985) looked at the need of teachers to remain current on pedagogical competencies. These involved inservice offerings and graduate course work. The Benedum Project (1989) and Odell and Copenhaver (1990) conducted research on improving the quality of education. One facet of their research addressed the improvement or professional development of teachers. They identified general areas associated with good teaching that should be included in professional development. Those areas involve both technical and pedagogical growth.

Many researchers dealt with inservice offerings as part of a professional development program. These offerings had a wide range of topics and were often offered on a local basis, but many were regional or statewide. Sparks (1983) found most inservice offerings fell into two general categories. The first category was labeled as training and consisted of activities where teachers were trained about new strategies or technologies. This was normally done in large groups under the assumption that all teachers could use the new materials or practices. The second category, as reported by Sparks, was labeled as clinical. Clinical inservice offerings typically involved teachers joining with the researcher to collaboratively investigate a particular process. This second category was deemed promising in helping teachers grow in awareness, reflection, and decision making. It was specifically cited as being supportive of professional development.

Not all of the research reviewed reflected positive images of typical inservice programs. Dunaway, Mechenbier, Parson, and Wright (1987) quickly identified what they felt was the problem with many inservice offerings when they stated, "All too often months of planning result in a six-hour inservice marathon on a topic of little interest, presented to a captive staff by an outsider with little day-to-day knowledge of the classroom" (p. 17). They quickly pointed out that teachers need to have a say in the types of inservice offerings in which they will participate. The offerings must be relative to the needs and desires of the teachers in order for them to be effective.

Bundy (1980) indicated finding inservice quality to have increased in recent years with much more serious acceptance than in past decades. Bundy observed a deep hunger grow within teachers for inservice to address the growing concerns with the chaotic social changes that affect educational reform.

Blatt (1980) also expressed concern with the areas covered by typical inservice offerings. Blatt's work revealed teachers' concerns for help with pedagogical problems concluding that most teachers felt their college professors and student teaching supervisors were not willing to share information on how to handle specific classroom situations. Blatt further summarized that teachers were dissatisfied because inservice offerings also avoided those same issues. Howey and Vaughan (1983) looked at inservice from a historical perspective. They faulted inservice with the following frequently cited criticisms:

> 1. Classroom-relevant content and easily adaptable instructional strategies are too infrequently presented.
>
> 2. Little continuity and coordination exists between or among staff development offerings and it is difficult if not impossible for participants to see how apparently unrelated in-service activities will in any basic way allow them to do a more effective job of helping their students learn.
>
> 3. In-service activities are infrequently related to measures of changed teacher behaviors or student learning outcomes and so teachers rarely receive feedback or are aware of whether or not the inservice program has made any difference in those crucial outcome measures.
>
> 4. Staff development is often presented and perceived as a way to correct a deficit rather than as a normal growth experience.
>
> 5. Too many times the in-service activity focuses solely on the teacher as the responsible party for improving instruction without sufficient attention to other organizational, social, and political factors in the school and school community (p. 98-99).

Howey and Vaughan (1983) concluded that on the basis of their interpretation of available evidence they proposed the following be applied to inservice offerings:

1. Interactiveness
2. Comprehensiveness
3. Continuity
4. Potency
5. Provision of support structures and personnel
6. Documentation (p. 104-105)

While the reviewed research did not agree on the overall value of inservice programs, there was a consensus that inservice plays a large role in most teachers' professional development.

Many teachers build a substantial amount of their professional development around continued education in the form of systematic courses beyond that of their bachelor's degree requirements. Some of these teachers plan their courses into an approved graduate program. Schlechty and Whitford (1983) examined continuing education and concluded that there were two distinct categories:

> 1. *Self-initiated continuing education* refers to any form of continuing education that an individual undertakes voluntarily and without support or inducement from an employer and over which the employer does not have authority.
>
> 2. *Job-oriented continuing education* refers to any form of continuing education sponsored or supported by the school system as an employer, or honored by that employer in terms of pay, status, or other rewards (p. 63).

Continuing education of both a self-initiated and job-oriented nature are important parts of a teacher's overall professional development. These self-initiated and job-oriented courses may be taken as a single endeavor or they may constitute an approved graduate program.

Hoy and Miskel (1987) took a slightly different view on teachers' professional development. They concluded that much of a teacher's growth needed to be individualized.

They recommended that teachers should subscribe to and diligently read the standard professional journals. Support was also raised for teachers reading technical publications providing subject specific information in many of the highly technical areas such as agriculture.

A considerable body of research was available indicating a variety of activities was needed to formulate a professional development program for teachers. Kahn (1984) discussed in length the complexities of changing a person's perceptions and attitudes. A multi-faceted approach to improvement was suggested. Dunkin and Biddle (1974) viewed teacher professional development as an on-going series of teacher-formative experiences and teacher-training experiences. Chell (1985) devoted an entire book to participation and organizations in which emphasis was placed on the important difference between individual development and group development. Not only is a variety of activities important to professional development, Iverson and Davis (1980) concluded that a variety of methods is also warranted. Teachers, like any other group of students, learn by different means of instruction. Just as a variety of instructional methods is suggested for most classrooms, variety in approaches to professional development is also warranted. Motivation and availability were both factors emphasized by Ziglar and Savage (1986) in regard to people achieving their potential. They stressed that regardless of the approach, professional development takes a commitment of time.

Phipps (1980) included one complete chapter on professional development in the handbook on agricultural education, stressing the need for a variety of approaches. Phipps suggested the following as appropriate components to an agricultural teacher's professional development program:

1. Inservice training
2. Library

3. Graduate study
4. Professional organizations
5. Teachers' conferences

Summary of Literature Review

The review of literature yielded a number of studies on professionalism, professional development, inservice, professional organizations, and adult education impacting on participation in professional development activities.

Many researchers have looked at the problem of participation in professional development activities from a holistic view while many chose to do specific research dealing with deterrents, demographic factors, or attitudinal factors. Research was reviewed identifying demographic factors for further study as well as research related to attitudes affecting behavior such as participation. Studies were reviewed identifying activities considered to be professional development in nature. Specific studies were identified dealing with professional vocational organizations and vocational agriculture teachers belonging to professional organizations. There was no specific research found regarding factors related to the participation of Pennsylvania agricultural education teachers in professional development activities.

The studies reviewed suggested a variety of demographic variables affecting participation in professional development activities. The literature also suggested that the effects of these factors was multidimensional. Additional studies revealed participation was also contingent upon the teachers' attitude toward the profession and the particular professional development activity.

Chapter 3

DESIGN AND PROCEDURES

Clarification of Purpose

The major purpose of this study was to identify specific factors related to participation of Pennsylvania agricultural education teachers in professional development activities. Specifically, the objectives of this study were:

1. To describe the relationship between professional attitude and participation in professional development activities.
2. To describe the relationships or differences between selected demographic factors and participation in professional development activities.
3. To describe the relationships between selected demographic factors, professional attitude, and participation in professional development activities.

Hypotheses

To facilitate the analysis of data, the following hypotheses were formulated:

H_1 There was a significant relationship between professional attitude and participation in professional development activities. It was further hypothesized that this was a positive correlation.

H_2 There was a significant difference in the teachers' participation in professional development activities when analyzed by:

A. Former FFA membership

B. Coaching athletics

C. Paid extra duty

D. Part-time job in addition to agricultural education teaching during the school year

E. Full-time job in addition to agricultural education teaching during the summer

F. Owning a business or production operation

G. Gender

H. Mother teaches/taught

I. Father teaches/taught

J. Sibling teaches/taught

K. Children who teach

H_3 There was a significant difference in the teachers' participation in professional development activities when analyzed by:

A. Financial contribution of a teacher's local school district toward the Professional/Technical Education Institute

B. Financial contribution of a teacher's local school district toward inservice

C. Financial contribution of a teacher's local school district toward professional organizations dues

D. Financial contribution of a teacher's local school district toward graduate credit

E. Financial contribution of a teacher's local school district toward professional/technical journal subscriptions

H_4 There was a significant relationship between the teachers' participation in professional development activities when analyzed by:

A. Total years taught

B. Contract length

C. Miles to PSU, University Park Campus

D. Age

E. Number of children under 18 years of age

H_5 There was a significant relationship between selected demographic factors, professional attitude, and participation in professional development activities when controlling for other model factors within a regression framework.

Design of the Study

The design of the study was descriptive correlation survey research. A descriptive survey was used to determine the Pennsylvania agricultural education teachers' professional development activity participation and professional attitude, and to collect data regarding selected demographic factors. Data were also collected based on teachers' perceptions of current professional development activities.

Definition of the Population

The study involved the entire population, or current census, of the agricultural education teachers in the state of Pennsylvania. There were 291 teachers listed in the Directory for Agricultural Education in Pennsylvania 1989-1990.

Instrumentation

A questionnaire for mailing was developed based upon the review of literature and the researcher's experience as an agricultural education teacher and teacher educator. The instrument was reviewed for face and content validity using seven faculty and three graduate students in the Department of Agricultural and Extension Education, The Pennsylvania State University. All of these individuals were former secondary agricultural education teachers. The instrument items were reviewed for clarity and distribution of responses. Poorly worded and ambiguous items were rewritten or eliminated.

Written permission to use this instrument for research with human subjects was obtained from The Pennsylvania State University, Office for the Protection of Human Subjects (Appendix A).

The instrument was divided into the following four sections:

1. Demographics
2. Professional development participation
3. Professional attitude
4. Perceptions regarding professional development activities

Each section was independently designed with an awareness of the overall objectives of the study.

Demographics

Part one of the instrument (Appendix B) was designed by the researcher to collect data on demographic variables which may have affected professional development participation. The following 22 factors were used based on the literature review:

1. Highest degree held
2. Pursuing an advanced degree
3. Years of teaching agricultural education
4. Number of agricultural education teachers in the school
5. Length of the contract in days
6. Former FFA membership

7. Financial contribution of a teacher's local school district toward Professional/Technical Education Institute
8. Financial contribution of a teacher's local school district toward inservice
9. Financial contribution of a teacher's local school district toward professional organizations dues
10. Financial contribution of a teacher's local school district toward graduate credits
11. Financial contribution of a teacher's local school district toward professional/ technical journal subscriptions
12. Miles from residence to PSU (UP Campus)
13. Coaching athletics in addition to agricultural education teaching
14. Other paid extra duty in addition to agricultural education teaching
15. Part-time job away from school during the school year in addition to agricultural education teaching
16. Full-time summer job away from school in addition to agricultural education teaching
17. Owning a business or production operation in addition to agricultural education teaching
18. Gender
19. Age
20. Marital status
21. Children under 18 years of age
22. Other family members teaching

Professional Development Participation

Part two of the instrument (Appendix B) was designed by the researcher to measure the type and amount of participation in professional development activities over the three-year period from 1986-1989. This section of the instrument collected data regarding:

1. Employment status as an agricultural education teacher
2. Professional organizations to which teachers paid dues
3. Professional development activities participation
4. Professional/technical journals regularly read

The researcher felt that data collected over a three-year time frame was an accurate measurement of professional development participation and could be easily and accurately recalled by teachers participating in the study. This measurement was expressed in the form of a professional development participation index.

Professional Attitude

Part three of the instrument (Appendix B) was designed to measure the professional attitude of teachers toward the profession of agricultural education teaching. This measurement was expressed in the form of a professional attitude index. The statements were taken directly from the professionalism scale developed by Hall (1968) and revised by Snizek (1972). Snizek reported a very acceptable reliability, using the Kuder-Richardson 21, of revisions to Hall's (1968) professionalism scale.

> Finally, how might item deletions effect the scale's reliability? Certainly any decrease in the total number of scale items will diminish the scale's total reliability. Hall's data reveal a drop from .86 to .84; Snizek's data from .80 to .78. More importantly, a deletion of the specified items should generally increase the stratified reliabilities of the scale's dimensions. (p. 112)

Hall reported a 0.84 reliability coefficient and Snizek 's data supported the highly reliable nature of the instrument (0.78). The participants responded to a series of 25 statements on a five-point, Likert-type scale. Response choices ranged from strongly agree (5) to strongly disagree (1). The "post hoc" reliability coefficient of the instrument used in this study resulted in a Cronbach's alpha of .76. Hall (1968) concluded that professional attitude consists of:

1. Use of the professional organization as a major referent
2. Belief in public service
3. Belief in self regulation
4. Sense of calling to the field
5. Sense of autonomy

Written permission to use the Professionalism Scale was received from Dr. Richard H. Hall, Distinguished Service Professor, Department of Sociology, State University of New York, Albany, New York (Appendix A).

Perceptions Regarding Professional Development Activities

The final part of the instrument, part four (Appendix B), was designed by the researcher to collect data regarding the agricultural education teachers' perceptions of the professional development activities currently being offered.

The participants responded to a series of 31 statements using a five-point, Likert-type scale. Response choices ranged from strongly agree (5) to strongly disagree (1). The teachers were asked to give their perceptions based on specific statements regarding the following professional development activities:

1. Agricultural education inservice courses (AG'S UP)
2. Agricultural education graduate courses (UP campus)
3. Agricultural education graduate program (PSU)
4. Professional/Technical Education Institute (summer institute)
5. Agricultural education professional organization (PVATA)

The information collected in this section may be used as a basis for improving professional development activity offerings.

Collection of the Data

Data for this research were collected between November 10, 1989, and January 17, 1990, through a four-part questionnaire mailed to all Pennsylvania agricultural education teachers at their work address. This questionnaire was accompanied by a cover letter emphasizing the importance of the project and indicating the significance of teacher participation in compiling the data. A pre-addressed, postage-paid envelope was included for convenience of the participant. All questionnaires were coded with a three digit number to allow for follow-up of non-respondents.

A second instrument was sent out four weeks after the initial mailing with an accompanying cover letter reminding teachers of the first mailing and encouraging participation in the study. The second questionnaire was identical to the first with the exceptions that it was printed on a different color paper and had printed across the top--"PLEASE MAIL BY 12/15/89." This mailing also contained a pre-addressed, postage-paid envelope.

Responses from early and late respondents were compared and found not to be significantly different. Based on the logic established by Miller and Smith (1983), the researcher concluded that nonrespondents would have responded similarly had they chosen to participate.

Data Analysis

The Pennsylvania State University main frame computer using the SPSS^X 3.1 data analysis program was employed to analyze the data. All data were initially run with a frequency program to give a descriptive analysis.

Part one of the instrument collected demographic data. This data addressed the second objective in the Clarification of Purpose. Comparisons were made between the demographic data and the professional development participation index, calculated from data gathered in part two of the instrument, with the use of t tests, one-way analysis of variance, correlation, or regression correlation, whichever was appropriate. Inferential statistics were appropriately used for data analysis even though a census was used in the study. The 1989-1990 population of Pennsylvania agricultural education teachers represents a sampling of the teachers before and after the 1989-1990 population (Oliver & Hinkle, 1981). In essence the current teacher population represent a "slice of life" sample for the Pennsylvania agricultural education teachers.

Part two of the instrument collected data on professional development participation over the three-year academic period 1986-1989. An accrued score was obtained by adding the participation responses. This score was then divided by the number of years the individual had taught agricultural education within the three-year period. This calculation yielded a professional development participation index and allowed the researcher to accurately include teachers who had been teaching for less than three years.

Data from part three provided the researcher with a professional attitude index. The data were collected using a five-point, Likert-type scale. Fourteen of the 25 statements had to be reverse coded in order for the attitude index to range from low to high, thus corresponding to the low to high scale calculated for the participation index. The major hypothesis tested was the strength of the relationship between the professional attitude index and the professional development participation index calculated from part two of the instrument. Correlations were calculated between the professional development participation index and the professional attitude index using a simple (PPMr) correlation.

A multiple regression analysis was utilized to examine the relative importance of all demographic factors and the professional attitude index as they related to the professional development participation index. The regression procedure used involved the test subcommand which "forced" variables into the equation.

Data collected in part four, perception of professional development activities, were reported using descriptive statistics but not used in any of the statistical analysis related to participation. The data were examined for use in professional development activity improvement.

Chapter 4

FINDINGS

Introduction

This chapter is organized into six sections. Section one contains demographic data regarding educational level, pursuit of an advanced degree, total years of experience teaching agricultural education, number of agricultural education teachers within the school, length of current contract, former FFA member status, gender, age, marital status, other employment in addition to teaching agriculture, number of children under 18 years of age, other family members that teach, and financial contribution of a teacher's local school district toward professional development activities. Section two reveals data relative to professional development participation. Participation was measured by professional organization membership, professional development activities attended, and professional/technical journals regularly read. Section three presents results for the professional attitude inventory used to calculate a professional attitude index. In section four, agricultural education teachers' perceptions of selected professional development activities are presented. Section five contains data on the relationships of factors involved in the study as they relate to the professional development participation index. The final part of this chapter, section six, provides a summary of significant findings.

The findings presented in this chapter are based on data from 215 Pennsylvania agricultural education teachers who responded to the questionnaire. This represented a response rate of 73.9 percent. Within three weeks of the initial mailing, 148 (50.8%) teachers had responded with usable questionnaires. Another 67 (23%) teachers responded as a result of a second mailing.

Demographics

Age and Gender

The average age of the respondents was slightly over 40 years of age (40.1) with a range of 22 to 61 years. A complete table of respondents' ages can be found in Appendix C. Females composed 6.5 percent (16) of the respondents.

Educational Background

Information regarding educational level was gathered by asking teachers to indicate the degree(s) earned, granting institution(s), and date(s) of completion.

Data regarding highest degree obtained indicated over 43 percent (43.2%) of the agricultural education teachers had earned a master's or doctorate degree (Table 2). One-half (53.5%) of the teachers have only completed a bachelor's degree. Approximately 2 percent (1.8%) of the respondents had been certified through the vocational intern procedures and had not completed a bachelor's degree.

The data indicated nearly one-fourth (23.7%) of the teachers were currently pursuing an advanced degree (Table 3).

Experience and Departmental Size

Respondents were asked to indicate the total number of years they had taught agricultural education, including the current year. The data indicated the mean was slightly over 15 years of experience (15.15). Table 4 gives a categorical summary for years of agricultural education teaching experience. A complete listing of the results can be found in Appendix C.

Table 2. Highest Degree Completed by Pennsylvania Agricultural Education Teachers. (N=215)

Highest Educational Degree Completed	Frequency	Percent	Cumulative Percent
High school	2	.9	.9
Associate	2	.9	1.9
Bachelor's	115	53.5	56.1
Master's	85	39.5	96.2
Doctorate	8	3.7	100.0
	3	Missing cases	

Table 3. Pennsylvania Agricultural Education Teachers Currently Pursuing Advanced Degrees. (N=215)

Pursuit of Advanced Degree	Frequency	Percent
Yes	51	23.7
No	162	75.3
	2	Missing cases

Table 4. Summary of Total Years Pennsylvania Agricultural Education Teachers Have Been Teaching Agricultural Education, Including this Year. (N=215)

Years Teaching	Frequency	Percent	Cumulative Percent
1-5	39	18.1	18.2
6-10	33	15.3	33.6
11-15	46	21.4	55.1
16-20	37	17.2	72.4
21-30	51	23.7	96.3
31-40	8	3.7	100.0
	1	Missing case	

The number of agricultural education teachers in a department may have an effect on the number and types of professional development activities participated in by a given teacher. Slightly less than one-half (43.7%) of the teachers reported teaching in a single teacher department (Table 5). Because of a few large departments, one of which has 22 teachers (13 of the 22 responded to the survey), the calculated mean was slightly over three (3.13) teachers per program. The median was two teachers per department.

The length of a teacher's contract is an employment factor which may influence a teacher's participation in professional development activities. Contract length ranged from 180 to 247 days per year, with a mean length of slightly less than 210 contract days per year. The data found in Table 6 suggested that about one-fifth (21.2%) of the respondents work a basic nine-month contract (185 days or less) while almost the same number (16.3%) reported working a 12-month contract (230 to 250 days). A complete account of the data dealing with length of contract can be found in Appendix C.

The literature suggested former membership in the FFA organization could have an influence on the amount of involvement in professional development activities. Slightly over one-half (54.4%) of the respondents are former FFA members (Table 7).

Financial Contributions of Teacher's Local School District

A series of questions regarding the financial contribution of a teacher's local school district toward various professional development activities was developed. Teachers indicated the amount the local school district currently contributed toward listed professional development activities. The three possible choices of financial contribution levels were:

1. None of the cost paid by the local school district
2. Some of the cost paid by the local school district
3. All of the cost paid by the local school district

Table 5. Total Number of Agricultural Education Teachers in Each Pennsylvania Agricultural Education Department. (N=215)

Number of Teachers per Department	Frequency	Percent	Cumulative Percent
1	94	43.7	43.7
2	74	34.4	78.1
3	21	9.8	87.9
4	2	.9	88.8
5	7	3.3	92.1
8	3	1.4	93.5
15	1	.5	94.0
22	13	6.0	100.0

Table 6. Summary of Total Number of Contract Days per Year as Reported by Pennsylvania Agricultural Education Teachers. (N=215)

Number of Days	Frequency	Percent	Cumulative Percent
180-185	44	20.5	21.2
186-200	41	19.1	41.1
201-215	28	13.0	53.1
216-230	59	27.4	81.6
231-250	35	16.3	100.0
	8	Missing cases	

Table 7. Former FFA Membership Status of Pennsylvania Agricultural Education Teachers. (N=215)

Former FFA Member	Frequency	Percent
Yes	117	54.4
No	98	45.6
Totals	215	100.0

The data in Table 8 indicated slightly over one-half (54.9%) of the local school districts paid all costs of the teachers toward Professional/Technical Education Institute while another one-fifth (19.5%) paid for some costs toward teachers' attending this annual event. About two-thirds (66.1%) of the teachers reported their local school districts paid some or all of the costs associated with inservice offerings. Less than 12 percent (11.2%) of the schools reimbursed any of the teachers' costs associated with professional organizations dues. A vast majority of respondents (82.8%) reported their local school districts paid all or some of the costs for graduate credits. Slightly over one-fourth (27%) of the teachers indicated that their local school districts paid for all or some of the subscription costs of professional/technical journals.

Distance to PSU, University Park

The Pennsylvania State University is the only Pennsylvania institution that offers certification in agricultural education; therefore, many professional development activities are held at The Pennsylvania State University, University Park Campus. Teachers were asked how many miles they lived from the University Park Campus. The data ranged from 5 to 300 miles with 123 miles being the mean distance (Appendix C). For clarity in reporting, the data were collapsed into 25-mile categories which represents approximately one-half hour driving time intervals (Table 9).

Employment in Addition to Agricultural Education Teaching

The literature suggested that outside employment in addition to teaching was a factor relative to participation in professional development activities. The data in Table 10 show nearly 45 percent (44.7%) of the respondents own their own business or production operation. Full-time summer jobs away from the school were reported by 38 (17.7%) teachers, while 63 (29.3%) teachers reported part-time jobs away from school during the

Table 8. Financial Contribution of Pennsylvania Agricultural Education Teachers' Local School Districts Toward Professional Development Activities. (N=215)

	Reimbursement Level					
	No Reimbursement		Some Reimbursement		Total Reimbursement	
Response	N	%	N	%	N	%
Professional/Technical Education Institute	41	19.1	42	19.5	118	54.9
Inservice	58	27.0	73	34.0	69	32.1
Professional dues	183	85.1	10	6.5	10	4.7
Graduate credit	32	14.9	114	53.0	64	29.8
Subscriptions	147	68.4	34	15.8	24	11.2

Table 9. Summary of Mileage from Pennsylvania Agricultural Education Teachers' Residence to The Pennsylvania State University, University Park Campus. (N=215)

Miles	Frequency	Percent	Cumulative Percent
0-25	4	2.0	2.1
26-50	17	8.1	11.1
51-75	17	7.9	20.1
76-100	36	16.9	39.2
101-125	29	13.6	54.5
126-150	43	20.2	77.2
151-175	8	3.8	81.5
176-200	25	11.8	94.7
201-225	3	3.3	96.3
226-250	4	1.9	98.4
251-275	1	.5	98.9
276-300	2	.9	100.0
	26	Missing cases	

Table 10. Other Areas of Employment for Pennsylvania Agricultural Education Teachers in Addition to Teaching Agricultural Education. (N=215)

Area of additional employment	Frequency Yes	Frequency No	Percent Yes
Coach athletics	27	188	12.6
Other paid "extra duty"	73	142	34.0
Part-time job away from school	63	152	29.3
Summer full-time job away from school	38	177	17.7
Own a business or production operation	96	119	44.7

school year. Other paid extra duty was reported by 73 teachers (34%). Only 27 teachers (12.6%) reported that they coach school related athletics.

Marital Status

Much of the literature reviewed for this study indicated that marital status was a major factor in professional development activity participation. The vast majority of teachers (84.7%) reported they were currently married while most of the rest (12.6%) reported they had never been married (Table 11).

Number of Children

Another family related factor receiving a considerable amount of attention in the literature was number of children. It is cautioned that the data were not meant to accurately reflect the total number of children, only those currently under 18 years of age. The number of children the respondent has under 18 years of age was examined because of the time and cost factors specifically associated with this age group. The mean value reported was 1.1 children per teacher (mode = 0) with a range of 0 to 5 (Table 12).

Other Family Members Teaching

The final area of demographic data collected dealt with members of the respondent's family that teach or have taught. Teachers had fairly similar numbers of fathers (25) and mothers (31) who taught. Siblings received the highest number of responses with 47 teachers indicating they had brothers or sisters who taught. Only 13 teachers indicated they had children who taught. The combined data from the questions about family members teaching or having taught are shown in Table 13.

Table 11. Current Marital Status of Pennsylvania Agricultural Education Teachers. (N=215)

Marital Status	Frequency	Percent
Never have been married	27	12.6
Divorced	5	2.3
Married	182	84.7
Widowed	0	0.0
	1	Missing case

Table 12. Number of Pennsylvania Agricultural Education Teachers' Children Currently Under Eighteen Years of Age. (N=215)

Number of Children	Frequency	Percent
0	96	44.7
1	35	16.3
2	50	23.3
3	22	10.2
4	7	3.3
5	2	.9
	3	Missing cases

Table 13. Other Members of Pennsylvania Agricultural Education Teachers' Family Who have Taught or are Teaching. (N=215)

	Frequency		Percent
Family Member	Yes	No	Yes
Mother	31	184	14.4
Father	25	190	11.6
Siblings	47	168	21.9
Children	13	202	6.0

Professional Development Participation

The data collected for section two of the survey enabled the researcher to calculate a professional development participation index score. The possible range of the index was 0 to 24.33, while the calculated indexes ranged from 0 to 18.33 with a mean of 6.92 (Appendix C). The index was calculated on the basis of a teacher's participation in professional development activities over the last three school years: 1986-1987, 1987-1988, and 1988-1989. Teachers were asked to indicate during which of these years they were employed as an agricultural education teacher and to record their participation in the following three areas:

1. Professional organization involvement
2. Professional development activities
3. Professional/technical journals regularly read

Professional Organization Involvement

Professional organization involvement was defined as being a dues paying member. Respondents were asked to indicate in which of the three years they were dues paying members of professional organizations to which agricultural education teachers normally belong. Space was provided to accommodate teachers who belonged to other professional organizations not on the list.

Pennsylvania agricultural education teachers belonged to their state teachers' association (Pennsylvania State Education Association, PSEA) with more frequency than any other professional organization. Data from 1988-1989 found over three-fourths (78.1%) of the teachers paid dues to PSEA. This same trend held across the other academic years for PSEA. The local education associations and the National Education Association were other general education type organizations in which the teachers frequently held memberships (range of slightly more than 50-70%). The Pennsylvania Vocational Agricultural Teachers' Association (PVATA) was the only other organization in which there was more than 50 percent participation. Annual PVATA membership ranged from 61.4 percent in 1987-1988, to 67.4 percent in 1988-1989. The data showed a fairly low level of membership (approximately 15%) in both the American Vocational Association (AVA) and the Pennsylvania Vocational Association (PVA). Table 14 shows a composite of the data gathered about professional organization involvement.

Professional Development Activity Participation

Teachers' professional development activity participation showed that only the Professional/Technical Education Institute and The Pennsylvania State University agricultural education inservices offerings had more than 50 percent participation in any of the three academic years in question. Participation in other inservice activities was reported by about one-third (35.3% to 41.9%) of the teachers (Table 15).

Professional/Technical Journals Read

Teachers were asked to list professional/ technical journals that they regularly read. Slightly more than one-half (58.1%) of the teachers indicated they read one or two journals on a regular basis. Thirty-one percent of the respondents did not read any professional journals on a regular basis. The mean number of journals read regularly was 2.7 with a range from 0 to 10 (Table 16). A complete table of the data can be found in Appendix C.

The professional/technical journal reported to be the most frequently read was The Agricultural Education Magazine with 65 (30.2%) respondents indicating regularly reading the publication. The Pennsylvania Agricultural Educator was second with 43 (20%)

Table 14. Pennsylvania Agricultural Education Teachers' Professional Organization Membership. (N=215)

Organization	Dues Paying Members					
	86-87		87-88		88-89	
	N	%	N	%	N	%
Pennsylvania Vocational Agricultural Teachers' Association	133	61.9	132	61.4	145	67.4
National Vocational Agricultural Teachers' Association	73	34.0	77	35.8	85	39.5
Pennsylvania Vocational Association	33	15.3	29	13.5	31	14.4
American Vocational Association	31	14.4	30	14.0	29	13.5
Local Education Association	130	60.5	135	62.8	149	69.3
Pennsylvania State Education Association	142	66.0	152	70.7	168	78.1
National Education Association	118	54.9	125	58.1	136	63.3
Phi Delta Kappa	6	2.8	8	3.7	8	3.7
FFA Alumni Association	14	6.5	17	7.9	20	9.3
American Federation of Teachers	12	5.6	12	5.6	12	5.6
Other	18	8.4	19	8.8	19	8.8
Second Other	9	4.2	11	5.1	12	5.6

Table 15. Pennsylvania Agricultural Education Teachers' Participation in Professional Development Activities. (N=215)

Activity	Number Participating					
	86-87		87-88		88-89	
	N	%	N	%	N	%
Professional/Technical Education Institute	116	54.0	114	53.0	113	52.6
Pennsylvania Vocational Education Conference	10	4.7	14	6.5	11	5.1
PSU Agricultural Education Inservice	102	47.4	110	51.2	113	52.6
Other Inservice	76	35.3	79	36.7	90	41.9
PSU Graduate Courses	48	22.3	50	23.3	54	25.1
Graduate Courses Other than PSU	33	15.3	31	14.4	30	14.0
Other	12	5.6	13	6.0	15	7.0
Second Other	6	2.8	6	2.8	6	2.8

Table 16. Summary of Professional/Technical Journals Regularly Read by Pennsylvania Agricultural Education Teachers. (N=215)

Number of Journals	Frequency	Percentage	Cumulative Percentage
0	68	31.6	31.6
1-2	57	26.5	58.1
3-4	39	18.1	76.2
5-6	24	11.2	87.4
7-8	12	5.6	93.0
9-10	15	7.0	100.0

responses indicating regular reading. A total of 154 different professional/technical publications were listed by respondents (Appendix C).

Professional Attitude Inventory

The professional attitude inventory measured teachers' attitudes toward the profession of agricultural education. From this data base the researcher was able to calculate a professional attitude index. The professional attitude index score was based on responses to a professionalism scale developed by Hall (1968) and discussed in Chapter 3. The scale can be found in Appendix B as a part of the survey instrument. A Cronbach's alpha reliability coefficient for the 25 items of .76 was calculated.

In order for the inventory to be usable as an index, responses to several statements had to be reverse coded. This recoding allowed a professional attitude index to be calculated. The higher the index score, the higher the professional attitude. A data summary table can be found in Appendix C. Because of the 1-5 Likert-type scale used, the theoretical range for the 25 question inventory was 25-125. For the purpose of clarity, those attitude items recoded for the index calculation were reworded within the table to eliminate reverse-order statements.

In addition to descriptive data, responses to the professional attitude instrument were further analyzed using factor analysis to determine if the same subscale factors emerged for the Pennsylvania agricultural education teachers as emerged in the Hall (1968) and Snizek (1972) studies. Table 17 shows the final varimax rotation from the factor analysis procedure. The statements (variables) loaded into categories that closely matched the five factor categories developed by Hall (1968). The factor loading criterion of .4 was used for the varimax factor rotation.

Table 17. Factor Analysis of Professional Attitude Variables as Reported by Pennsylvania Agricultural Education Teachers.
(numbers in parentheses indicate factor categories as reported in Table 18)*

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
V116	.770 (3)							
V120	.726 (3)							
V113	.692 (3)							
V123	.667 (3)							
V106	.499 (3)							
V105		.759 (2)						
V112		.739 (2)						
V102		.686 (2)						
V122		.524 (2)						
V108		.514 (2)						
V109			.731 (4)					
V124			.672 (4)					
V107			.603 (4)					
V114			.565 (4)					
V111				.802 (1)				
V115				.780 (1)				
V104				.560 (1)				
V103					.799 (5)			
V121					.778 (5)			
V117						.825 (1)		
V101						.732 (1)		
V125							.715 (5)	
V119							.671 (5)	
V118								-.758 (4)
V110								.590 (5)

* Categories identified by Hall (1968) and Snizek (1972)

1. Professional Organization as Reference
2. Belief in Service to Public
3. Belief in Self Regulation
4. Sense of Calling to Field
5. Feeling of Autonomy

Table 18 defines the composition of the factors and includes the statements as presented in the questionnaire. Since there was a very close match to the work of Hall (1968) and Snizek (1972), their factor names were adopted for use in this study. All but two of the 25 statements loaded under one of the professional attitude categories as identified by Hall and Snizek. The factor analysis results further enhanced the construct validity of the five-factor professional development attitude scale for Pennsylvania agricultural education teachers.

Perceptions of Professional Development Activities

This section of the survey examined teachers' perceptions of the professional development activities currently being offered through the Department of Agricultural and Extension Education, The Pennsylvania State University. Data were collected for five major areas of activities as described in the instrumentation section in Chapter 3. This instrument can be found in Appendix B.

Pennsylvania agricultural education teachers consistently indicated positive perceptions or no opinion about all five of the following professional development activities:

1. Agricultural education inservice courses (AG'S UP)
2. Agricultural education graduate courses (UP Campus)
3. Agricultural education graduate program (PSU)
4. Professional/Technical Educational Institute (summer institute)
5. Agricultural education professional organization (PVATA)

A composite of the frequencies recorded for the Pennsylvania agricultural education teachers' perceptions of current professional development activities can be found in Appendix C.

Table 18. Interpretation of Factors of Professional Attitude as Reported by Pennsylvania Agricultural Education Teachers.

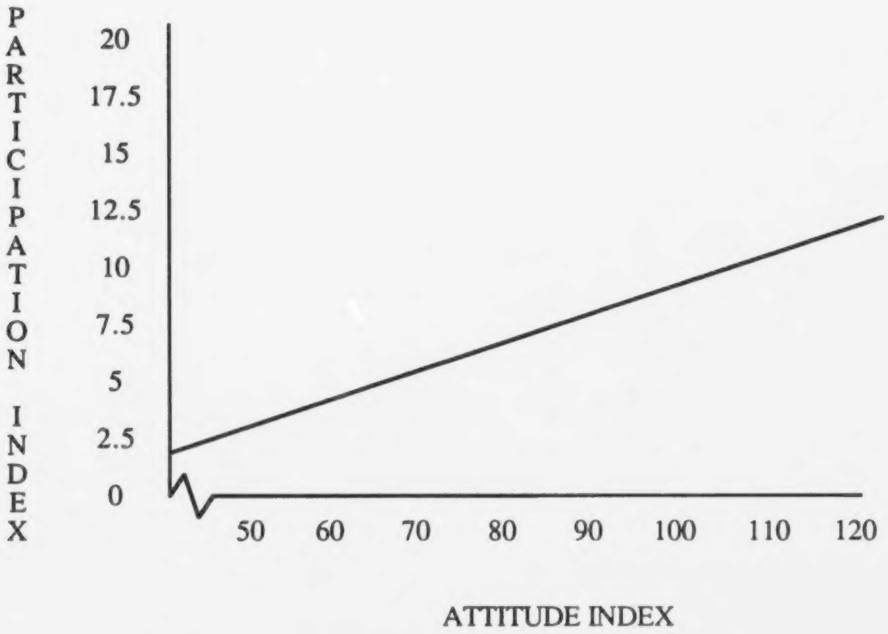
Variable	Statement	Factor Loading
FACTOR 1.	BELIEF IN SELF REGULATION	
V116	We really have no way of judging each other's competence.	.770
V120	There is not much opportunity to judge how another person does their work.	.726
V113	A problem in this profession is that no one really knows what their colleagues are doing.	.692
V123	My colleagues pretty well know how well we all do in our work.	.667
V106	My fellow professionals have a good idea about each other's competence.	.499
FACTOR 2.	BELIEF IN SERVICE TO PUBLIC	
V105	I think that my profession, more than any other, is essential for society.	.760
V112	Some other occupations are actually more important to society than is mine.	.739
V102	Other professions are actually more vital than mine.	.686
V122	If ever an occupation is indispensable, it is this one.	.524
V108	The importance of my profession is sometimes over stressed.	.514
FACTOR 3.	SENSE OF CALLING TO FIELD	
V109	The dedication of people in this field is most gratifying.	.731
V124	There are very few people who don't really believe in their work.	.672
V107	People in this profession have a real "calling" for their work.	.603
V114	It is encouraging to see the high level of idealism which is maintained by people in this field.	.565
FACTOR 4.	PROFESSIONAL ORGANIZATION AS REFERENCE (Combination of Factor 4 and Factor 6)	
V111	I believe that the professional organization(s) should be supported.	.802
V115	The professional organization doesn't do much for the average member.	.780
V104	I regularly attend professional meetings at the local level.	.560
V117	Although I would like to, I really don't read the journals too often.	.825
V101	I systematically read the professional journals.	.732
FACTOR 5.	FEELING OF AUTONOMY (Combination of Factor 5 and Factor 7)	
V103	I make my own decisions in regard to what is to be done in my work.	.799
V121	I am my own boss in almost every work-related situation.	.778
V125	Most of my decisions are reviewed by other people.	.715
V119	My own decisions are subject to review.	.671

Relationships of the Factors

Objective one of this study was to describe the relationship between professional attitude and participation in professional development activities. The researcher hypothesized that there would be a positive relationship between the two variables. In order to test the strength of this relationship, data were converted into professional attitude indexes and professional development participation indexes and were entered into a regression correlation. The possible range of professional attitude indexes was 25 to 125. The actual calculated range was 60 to 109, with a mean score of 84.96. The possible range of professional development participation indexes was 0 to 24.33. The actual calculated range was 0 to 18.33, with a mean of 6.92. Complete tables for both indexes can be found in Appendix C. The data indicated there was a significant ($p \leq .001$) positive, moderate relationship ($r = .28$) between the professional development attitude index and the professional development participation index (Figure 1). Therefore, the hypothesis H_1 formulated by the investigator was not rejected.

Objective two of this study was to describe the relationships between selected demographic factors and participation in professional development activities. Data for 22 demographic variables were collected. Because the demographic data varied from nominal to interval/ratio-type data, a variety of statistical tests was performed to describe the differences or relationships between these variables and the professional development participation indexes.

The t test was used to examine for differences in the professional development participation index. Complete t test results can be found in Appendix C. Significant differences ($p \leq .05$) were found in professional development participation for



PPMr = .27813
Constant = .07735
2-Tailed Significance = <.0001

Figure 1. Professional Development Attitude Index of Pennsylvania Agricultural Education Teachers when Compared with the Professional Development Participation Index Using a Correlation.

the following variables (Table 19):

1. Former FFA membership
2. Full-time job in addition to agricultural education teaching during the summer
3. Children who teach

Therefore, hypothesis H_2 was not rejected for the aforementioned variables and was rejected for the eight other variables.

Pennsylvania agricultural education teachers who were former FFA members participated at a significantly higher level in professional development activities than teachers who were not former FFA members. Having a full-time summer job in addition to teaching significantly affected participation in a negative direction. Even though only 13 teachers reported they had children who taught, it was a significant factor on those teachers' participation. Those agricultural education teachers who have children who teach participated significantly more in professional development activities than those who do not have children who teach.

Demographic variables in an ordinal scale format were tested with the professional development index by use of a one-way analysis of variance. There were three demographic factors that showed significant differences at or beyond the .05 alpha level using one-way ANOVA. Those factors were:

1. Financial contribution of a teacher's local school district toward Professional/Technical Education Institute
2. Financial contribution of a teacher's local school district toward inservice
3. Financial contribution of a teacher's local school district toward graduate credit

Pennsylvania agricultural education teachers whose local school districts paid for the professional development activities participated at a significantly higher level than teachers

Table 19. Demographic Factors of Pennsylvania Agricultural Education Teachers when Comparing the Professional Development Participation Index Using a t Test Significant at the .05 Level. (N=215)

Demographic Factor	Frequency	Mean*	Standard Deviation	2-Tailed Probability
Former FFA membership status				
FFA member	117	7.47	3.83	.014
Non FFA member	98	6.25	3.32	
Full-time summer employment status in addition to teaching agricultural education				
Full-time summer job	38	5.06	3.22	.000
No full-time summer job	170	7.40	3.65	
Teaching status of children				
Children who teach	13	9.56	4.42	.007
Children who do not teach	202	6.75	3.54	

* Theoretical range = 0 to 18.33

from districts that did not pay for the activities. Tables 20, 21, and 22 give the results from the significant one-way ANOVAs. The hypothesis H_3 was not rejected when analyzed by the three variables mentioned above and was rejected when analyzed by the remaining two variables.

Demographic variables collected in an interval/ratio form were tested with the professional development index using regression correlation. The only demographic factor to show significant relationship at or beyond the .05 level was length of contract in days ($r = .435$). The relationship indicated that teachers with longer contracts participated at a higher level. A table of all correlations can be found in Appendix C. Therefore, hypothesis H_4 was not rejected when analyzed by contract length and was rejected for all other variables.

The third objective of this study was to describe the relationships between selected demographic factors, professional attitude, and participation in professional development activities when examined in a regression model. A "forced" multiple regression of the professional development participation index with all demographic factors plus the professional attitude index was performed. The final form of this multiple regression model found the following nine factors (R^2 value of 35.9%) to all be significant at or beyond the .05 level:

1. Father teaches
2. Highest degree earned
3. Financial contribution of a teacher's local school district toward professional/ technical journal subscriptions (negative relationship)
4. Attitude index
5. Length of contract
6. Currently pursuing degree

Table 20. One-way Analysis of Variance of Local School Districts' Financial Contribution Toward Professional/Technical Education Institute and Professional Development Participation Index. (N=215)

Financial Contribution Toward Professional/ Technical Education Institute	Frequency	Mean	S. D.	Significant Difference Between* Group 1	 Group 2	 Group 3
Group 1 - No cost paid	41	4.7	2.8	NA	--	S
Group 2 - Some cost paid	42	6.0	3.0	--	NA	S
Group 3 - All cost paid	118	8.5	3.3	S	S	NA
	14	Missing cases				

* (S) - Denotes pairs of groups significantly different at the .05 level.
(--) - Denotes pairs of groups not significantly different at the .05 level.
(NA) - Denotes "Not Applicable" comparing group with itself

Table 21. One-way Analysis of Variance of Local School Districts' Financial Contribution Toward Inservice and Professional Development Participation Index. (N=215)

Financial Contribution Toward Inservice	Frequency	Mean	S. D.	Significant Difference Between* Group 1	 Group 2	 Group 3
Group 1 - No cost paid	58	5.5	3.1	NA	S	S
Group 2 - Some cost paid	73	7.2	3.9	S	NA	--
Group 3 - All cost paid	69	8.3	3.2	S	--	NA
	15	Missing cases				

* (S) - Denotes pairs of groups significantly different at the .05 level.
(--) - Denotes pairs of groups not significantly different at the .05 level.
(NA) - Denotes "Not Applicable" comparing group with itself

Table 22. One-way Analysis of Variance of Local School Districts' Financial Contribution Toward Graduate Credit and Professional Development Participation Index. (N=215)

Financial Contribution Toward Graduate Credits	Frequency	Mean	S. D.	Significant Difference Between* Group 1	Group 2	Group 3
Group 1 - No cost paid	32	5.4	3.7	NA	S	S
Group 2 - Some cost paid	114	7.2	3.5	S	NA	--
Group 3 - All cost paid	64	7.7	3.3	S	--	NA
	5	Missing cases				

* (S) - Denotes pairs of groups significantly different at the .05 level.
(--) - Denotes pairs of groups not significantly different at the .05 level.
(NA) - Denotes "Not Applicable" comparing group with itself

7. Financial contribution of a teacher's local district toward Professional/Technical *Education Institute*
8. Age (negative relationship)
9. Total years taught

The nine factors listed above significantly interact to explain a significant proportion of the variance in professional development activity participation. Therefore, hypothesis H_5 was not rejected. A complete table for the initial multiple regression and the final regression model can be found in Appendix C.

Summary of the Findings

The data collected in this research indicated attitude toward the agricultural education teaching profession has a positive relationship with the participation of Pennsylvania agricultural education teachers in professional development activities.

Significant demographic factors relating to participation tend to group into the following four categories:

1. Former FFA membership
2. Contract length
3. Financial contribution of a teacher's local school district toward professional development activities
4. Children who teach

The analysis of data further revealed there was an inter-relationship among several of the factors, both attitude and demographic, that related to the participation of Pennsylvania agricultural education teachers in professional development activities.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter is divided into the following three sections: summary; conclusions, implications, and recommendations; and recommendations for further study. The summary provides an overview of the study including methodology and significant findings. Section two provides conclusions, implications and recommendations related to each of the three research objectives. The chapter concludes with overall recommendations for further research.

Summary

This study was undertaken to examine factors relating to the participation of Pennsylvania agricultural education teachers in professional development activities. Specifically, the objectives of this study were:

1. To describe the relationship between professional attitude and participation in professional development activities.
2. To describe the relationships or differences between selected demographic factors and participation in professional development activities.
3. To describe the relationships between selected demographic factors, professional attitude, and participation in professional development activities.

A questionnaire was developed and administered by mail to the 1989-90 population of Pennsylvania agricultural education teachers. The questionnaire, which was divided into four parts, included statements/questions designed to provide information relative to demographics, professional development participation, professional attitude, and perceptions of professional development activities. The section of the questionnaire dealing with professional attitude was developed by Hall (1968) and revised by Snizek (1972). The remainder of the questionnaire was developed by the researcher. The instrument was reviewed by selected faculty and graduate students of the Penn State Department of Agricultural and Extension Education for content validity, clarity, and distribution of responses. The "post hoc" reliability coefficient of the instrument, as used in this study, resulted in a Cronbach's alpha of .76.

After two mailings, to the population of 291 teachers, a 75.6 percent response rate was attained. Of the questionnaires returned, 215 (73.9%) were usable. Early and late respondents were compared with no significant differences found in the two populations. Therefore, the researcher concluded that nonrespondents probably would have responded similarly had they chosen to participate (Miller & Smith, 1983). For statistical analysis the researcher considered the current 1989-90 agricultural education teachers to represent a "slice of life" sample of the Pennsylvania agricultural education teachers (Oliver & Hinkle, 1981); therefore, inferential statistics were used.

Professional Development Participation

The respondents reported their participation in professional development activities for the school years of 1986-87, 1987-88, and 1988-89. Data were collected in regard to membership in professional organizations, participation in professional development activities, and regular reading of professional/technical journals. A professional development participation index was calculated by adding all positive responses within the three participation areas of data collection then dividing that summation by the number of years the respondent had taught during the three academic years in question. This provided an index that was accurate for all respondents, even those who taught less than three years.

Professional Attitude Inventory

Respondents recorded their attitudes using a five-point, Likert-type scale, to 25 statements dealing with professional attitude toward the agricultural education teaching profession. The 25 statements represented five separate statements grouped within five general categories. The raw data were converted to a professional attitude index. This was the only form in which the data were analyzed. None of the 25 questions was analyzed individually. Overall professional attitude toward the agricultural education teaching profession was analyzed to be significantly ($\leq .05$) related ($r = .278$) to the professional development index.

Demographics

Data were collected on a total of 22 selected demographic factors. Appropriate analysis techniques, varying with the scale of measurement for responses collected, showed seven factors to have significant ($\leq .05$) relationships or differences with the professional development index. The following five factors exhibited significant ($\leq .05$) difference when comparing the professional development index values for the levels of the factors:

1. Former FFA membership
2. Children who teach
3. Financial contribution of a teacher's local school district toward Professional/Technical Education Institute
4. Financial contribution of a teacher's local school district toward inservice
5. Financial contribution of a teacher's local school district toward graduate credit

There was also a significant relationship between the length of teachers' contracts and the value of the professional development index.

The only factor to show a negative difference with the professional development index was having a full-time summer job in addition to teaching agricultural education.

Perceptions of Professional Development Activities

Respondents ranked their perceptions on a five-point, Likert-type scale in response to selected topics about five professional development activities. Those activities included:

1. Agricultural education inservice courses (AG'S UP)
2. Agricultural education graduate courses (UP Campus)
3. Agricultural education graduate program in general (PSU)
4. Agricultural education Professional/Technical Education Institute (summer institute)
5. Agricultural education professional organization (PVATA).

The respondents' mean responses were consistently positive, or they had no opinion (neutral) regarding their perceptions in each of the five activity areas. The data gathered in this section were collected to provide a basis for improvement of future professional development activities offered through the Department of Agricultural and Extension Education. The data were not used in any of the analyses pertinent to this study.

Conclusions, Implications, and Recommendations

The following conclusions, implications, and recommendations are based on the review of literature, the findings of the study, and the judgment of the researcher. Each research objective is sequentially dealt with in its entirety before the next objective is discussed.

Objective One

Objective one was to describe the relationship between professional attitude and participation in professional development activities.

Conclusion:

Attitude toward the profession of agricultural education teaching has a direct relationship with the participation of Pennsylvania agricultural education teachers in professional development activities. The higher or more positive an agricultural education teacher's attitude toward the profession of agricultural education, the higher that teacher's level of participation in professional development activities.

Implication:

This conclusion suggested that an improved attitude toward the profession of agricultural education teaching might increase the participation in professional development activities. Beck (1990) explored many common theories regarding professional attitudes, motivation, and job satisfaction suggesting that this relationship is very complex. Beck further implied that teachers' attitudes toward their profession very definitely relates to their participation in professional development activities. Kahn (1984) suggested that attitude is a multidimensional factor that is formed differently in each person. In addition, Kahn noted the complexity of attitude relationships to behavior and suggested that attitudes are long lasting, complex, difficult to change, and would most likely influence a person's participation in professional development activities.

Recommendations:

1. Undergraduate involvement and student membership in professional organizations should be increased. Professionals tend to establish attitudes about their profession early in their career. Lawver and Lee (1988) found

student membership to be the most important variable in predicting future professional organization participation by vocational agriculture teachers.

2. Pennsylvania Vocational Agriculture Teachers' Association members should "adopt" beginning teachers and include them in membership functions. Ryan (1986) described new teachers as being strangers in a familiar setting. They have spent a considerable amount of time in schools but are strangers to the profession of teaching. The school surroundings are comfortable, but the perception of the school is much different from the teacher's side of the desk. Encouraging participation in professional development activities can be very instrumental in future involvement of these new teachers. Ross (1988) encouraged new teachers to be students of teaching. This type of behavior promotes participation in professional development activities.
3. The Pennsylvania Vocational Agriculture Teachers' Association should waive registration and meal costs for first-year Professional/Technical Education Institute participants. The data suggested that participation in the institute was significantly enhanced when a financial contribution of a teacher's local school district was made toward the Professional/Technical Education Institute. Therefore, if the registration and meal costs were waived, theoretically, participation should increase within this professional development activity.

Objective Two

Objective two was to describe the relationships or differences between selected demographic factors and participation in professional development activities.

Conclusion:

The participation of Pennsylvania agricultural education teachers in professional development activities has a relationship to some selected demographic factors. These significant factors, as indicated in Chapter 4, tend to fall into the following four categories:

1. Former FFA membership
2. Length of contract
3. Financial contribution of a teacher's local school district toward professional development
4. Children who teach

Each of the factors listed above, with the exception of teaching status of children, will be discussed as a separate implication.

Implication #1 (Former FFA Membership):

Agricultural education teachers with a former FFA membership background have a higher level of participation in professional development activities. This implication was substantiated by Lawver and Lee (1988) when they found that former FFA membership was the fifth most important variable in predicting professional organization participation by vocational agriculture teachers.

Recommendations:

1. Active recruitment of Pennsylvania FFA members to major in agricultural education at The Pennsylvania State University should be increased by:
    a. Increasing agricultural education scholarships to FFA members.
    b. Providing agricultural education college credit for current state FFA officers.

c. Conducting recruitment activities at State FFA Activities Week, Pennsylvania Farm Show, and PSU Ag Progress Days.

d. Increasing correspondence from the Department of Agricultural and Extension Education to Keystone Degree winners, American Degree winners, state proficiency winners, and state and national contest winners.

e. Providing incentive awards to Pennsylvania agricultural education teachers who provide names of students interested in agricultural education teaching or who have students enrolled in agricultural education at The Pennsylvania State University.

f. Having Department of Agricultural and Extension Education faculty update the department's recruitment plan discussing resource commitments in terms of human capital and financial contributions.

Implication #2 (Length of contract):

Pennsylvania agricultural education teachers' contracts should be extended to include full-time summer employment as an agricultural education teacher. This will provide full-time employment within the profession and prevent the need for additional full-time employment during the summer. Maslow (1987) indicated that areas of higher motivation, such as professional development, will not be motivating considerations until the basic needs, such as adequate salary, are met. If teachers not on full-time agricultural education contracts, are seeking additional full-time summer jobs, they must need the salary. Lengthening teaching contracts will enable teachers to meet their basic salary needs, thereby motivating more teachers to participate in professional development activities.

Recommendation:

Local school districts should be encouraged to hire agricultural education teachers on contracts of 220 days or longer.

Implication #3 (Financial contribution of a teacher's local school district):

The financial contribution of agricultural education teachers' local school districts toward the Professional/Technical Education Institute, inservice, and graduate credits has a positive relationship with their participation in professional development activities. The higher the level of financial contribution, the higher the level of participation. Maslow's Hierarchy of Needs Theory of Human Motivation (Hoy & Miskel, 1987), indicates that achievement of potential (professional development) will not be pursued if an individual is concerned with providing the necessities of life. Personal expense is very much a factor in the decision to participate in professional development activities. Therefore, if the cost is eliminated or lessened, the teachers will theoretically participate in more professional development activities.

Recommendations:

1. Local school districts should be encouraged to financially contribute to the Professional/Technical Education Institute, inservice, and graduate credits.
2. Advanced copies of the Professional/Technical Education Institution program and inservice offerings should be disseminated to local school district administrators.

Objective Three

Objective three was to describe the relationships between selected demographic factors, professional attitude, and participation in professional development activities.

Conclusion:

Teachers' attitudes toward the profession and eight demographic factors accounted for a significant proportion of the variation in the participation of Pennsylvania agricultural education teachers in professional development activities.

Implication:

The following three factors discussed earlier in this chapter each individually show significance with professional participation:

1. Attitude
2. Length of contract
3. Financial contribution of a teacher's local district toward Professional/ Technical Education Institute

Notably, the remaining six factors were not significant when tested by themselves, but when analyzed collectively with the previous three variables, they form a significant regression model. The following were not previously discussed because they did not indicate significance when analyzed individually:

1. Father teaches
2. Highest degree earned
3. Financial contribution of a teacher's local school district toward professional/technical journal subscriptions (negative relationship)
4. Currently pursuing degree
5. Age (negative relationship)
6. Total years taught

Since none of these six factors showed individual significance, the researcher felt it was inappropriate to single them out from this group for discussion. What is apparent is that the influence of attitude, length of contract, and the financial contribution of a teacher's local school district toward Professional/Technical Education Institute interact in such a fashion with the six variables which enables them to surface as significant components of the model. This research conclusion implies that the factors related to participation in professional development activities are very complex and are interrelated.

Recommendations for Further Study

In conducting this study and with the experiences associated with eleven years of agricultural education teaching and four years as a faculty member responsible for undergraduate agricultural education programming, the researcher recognizes the need for further research. The following are recommended areas of further study:

1. Develop a model of professional preparation for agricultural education undergraduates at The Pennsylvania State University.
2. Develop a statewide professional development program for agricultural education teachers.
3. Develop a recruitment model for agricultural education.
4. Determine the effectiveness of the current professional development programs as they relate to participation.
5. Replicate this study in other states, especially those in close proximity to Pennsylvania.

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Appendix A

LETTERS OF CORRESPONDENCE

PENNSTATE

(814) 863-0441

Department of Agricultural and
Extension Education
College of Agriculture

106 Armsby Building
The Pennsylvania State University
University Park, PA 16802

October 3, 1989

Dr. Richard H. Hall
Distinguished Service Professor
Department of Sociology
Social Science 340
University of Albany
State University of New York
Albany, NY 12222

Dear Dr. Hall:

I enjoyed our phone conversation this morning. I am specifically interested in testing the relationship and differences of factors dealing with professional development of agricultural education teachers in Pennsylvania. One of the areas the literature review suggests is professional attitude. The work you have done on professional attitude seems very suited to the research I am proposing.

This is a formal request to include your professional attitude inventory as modified by William Snizek as part of my instrument.

Thank you in advance for your cooperation.

Sincerely,

David E. Hall

An Equal Opportunity University

BEST COPY AVAILABLE

UNIVERSITY AT
ALBANY
STATE UNIVERSITY OF NEW YORK

Richard H. Hall
Distinguished Service Professor
Department of Sociology
518 442-4664
FAX 518 442-4936

Social Science 340
Albany, New York
12222

19 October 1989

David E. Hall
Department of Agricultural and Extension Education
106 Armsby Building
The Pensylvania State University
University Park, PA 16802

Dear Mr. Hall:

Here are the professionalism scales and a paper that describes their development. You might want to look at a revision of the scales that is contained in a paper by Snizek in the 1972 American Sociological Review. This was from a doctoral dissertation at Penn State by the way.

The scale has been used (overused?) extensively in the field of nursing and a few times for other educators.

Good luck.

Sincerely,

Richard H. Hall

PENNSTATE

(814) 863-0443

Department of Agricultural and
Extension Education
College of Agriculture

106 Armsby Building
The Pennsylvania State University
University Park, PA 16802

October 22, 1989

«Name»
«Address»
«City», «State» «Zip»

Dear «Faculty Member»:

I am in the developmental stage of my research study "Factors Related to the Participation of Pennsylvania Agricultural Education Teachers in Professional Development Activities" as partial fulfillment of my Doctor of Philosophy Degree in Agricultural Education. The specific objectives of my study are:

1. To describe the relationship between professional attitude and participation in professional development activities.
2. To describe the relationship between selected demographic factors and participation in professional development activities.
3. To describe the interrelationship between selected demographic factors, professional attitude, and participation in professional development activities.

Enclosed is a copy of the survey instrument being developed to address the objectives of this study. As a former agricultural education teacher please review this questionnaire and offer any suggestions on content validity and clarity. Please return the completed questionnaire and your suggestions to me by October 29.

Your cooperation will be greatly appreciated.

Sincerely,

David E. Hall
Instructor

An Equal Opportunity University

PENNSTATE

(814) 863-0443

Department of Agricultural and
Extension Education
College of Agriculture

10th Armsby Building
The Pennsylvania State University
University Park, PA 16802

October 22, 1989

«Name»
«Address»
«City», «State» «Zip»

Dear «Graduate Student»:

I am in the developmental stage of my research study "Factors Related to the Participation of Pennsylvania Agricultural Education Teachers in Professional Development Activities" as partial fulfillment of my Doctor of Philosophy Degree in Agricultural Education. The specific objectives of my study are:

1. To describe the relationship between professional attitude and participation in professional development activities.
2. To describe the relationship between selected demographic factors and participation in professional development activities.
3. To describe the interrelationship between selected demographic factors, professional attitude, and participation in professional development activities.

Enclosed is a copy of the survey instrument being developed to address the objectives of this study. As a former agricultural education teacher please review this questionnaire and offer any suggestions on content validity and clarity. Please return the completed questionnaire and your suggestions to me by October 29.

Your cooperation will be greatly appreciated.

Sincerely,

David E. Hall
Instructor

An Equal Opportunity University

PENNSTATE

(814) 865-1775

Senior Vice President for Research and
Dean of the Graduate School
Office for the Promotion of Human Subjects

115 Kern Graduate Building
The Pennsylvania State University
University Park, PA 16802

Date: November 6, 1989

From: R. J. Bord, Director RJB

To: David E. Hall

Subject: Proposal for Use of Human Subjects in Research - Exemption "Identifying Professional Development Participatory Factors of Agricultural Education Teachers in Pennsylvania"

I have examined your proposal for use of human subjects in your research. Subjects in your research are at minimal risk. You may proceed with your study.

By accepting this decision you agree to notify this office of (1) any additions or changes in procedures for your study that modify the subjects' risks in any way and (2) any events that affect the safety or well-being of subjects.

cc: D. C. Scanlon
S. M. Curtis
C. R. Krueger

An Equal Opportunity University

BEST COPY AVAILABLE

PENNSTATE

(814) 863-[illegible]

Department of Agricultural and
Extension Education
College of Agriculture

106 Armsby Building
The Pennsylvania State University
University Park, PA 16802

November 10, 1989

«Name»
«Address»
«City», «State» «Zip»

Dear «Name»:

The professional development of teachers is an important and ongoing process which keeps teachers technically and professionally up-to-date. It is a process that is continuous but does not occur quickly or through a single activity. It is part of an attitude and commitment to mastering a level of performance that can only be achieved through constant and dedicated work.

The specific purpose of this study is to identify factors related to participation in professional development activities of agricultural education teachers in Pennsylvania. Information gathered will be used to analyze current professional development activities and make recommendations as to future improvements.

The information will be kept confidential and the results will be used only as a part of the overall study.

Your cooperation and honesty in responding to the questions in a timely manner is greatly appreciated.

Sincerely,

Samuel M. Curtis
Professor and Head

Dennis C. Scanlon
Summer Institute Director

David E. Hall
Instructor

An Equal Opportunity University

PENNSTATE

(814) 863-7463

Department of Agricultural and
Extension Education
College of Agriculture

106 Armsby Building
The Pennsylvania State University
University Park, PA 16802

December 8, 1989

«Name»
«Address»
«City», «State» «Zip»

Dear «Name»:

Early in November you were sent a questionnaire dealing with professional development of agricultural education teachers. At the time of this letter, our data file, indicates that you have not responded to the survey. We desire to have your situation and attitudes represented in the overall computation of information.

If you have sent in your response, please disregard this second survey. If you have misplaced the original questionnaire, we have enclosed a second copy. This second survey is printed on a different color paper, but contains the identical areas for response.

Because we intend to compute the data during the period of time between semesters, please mail your completed survey no later than Friday, December 15, 1989.

The information will be kept confidential and the results will be used only as a part of the overall study.

Your cooperation and honesty in responding by December 15 is greatly appreciated.

Sincerely,

Samuel M. Curtis
Professor and Head

Dennis C. Scanlon
Summer Institute Director

David E. Hall
Instructor

An Equal Opportunity University

Appendix B

FINAL QUESTIONNAIRE AND CODE BOOK

PROFESSIONAL DEVELOPMENT QUESTIONNAIRE

PART 1 GENERAL INFORMATION

1. EDUCATIONAL DEGREES:

	INSTITUTION NAME	DATE COMPLETED
High School Diploma	____________	______
Associate Degree	____________	______
Bachelor's Degree	____________	______
Master's Degree	____________	______
Doctor's Degree	____________	______

2. CURRENTLY PURSUING AN ADVANCED DEGREE? ____ Yes ____ No

3. TOTAL YEARS YOU HAVE TAUGHT AG, INCLUDE CURRENT YEAR: ____

4. TOTAL NUMBER OF AG TEACHERS IN YOUR SCHOOL: ____

5. LENGTH OF YOUR CURRENT CONTRACT IN DAYS: ____

6. WERE YOU AN FFA MEMBER IN HIGH SCHOOL? ____ Yes ____ No

7. SCHOOL DISTRICT PAYMENT OF PROFESSIONAL DEVELOPMENT:
(Put an "X" in the most accurate response for each activity)

	AMOUNT CURRENT DISTRICT PAYS		
ACTIVITY	NONE	SOME	ALL
Summer Institute	______	______	______
Inservice (not required by school)	______	______	______
Professional organizational dues	______	______	______
Graduate credits	______	______	______
Professional journal subscriptions	______	______	______

8. DRIVING MILES FROM YOUR HOME TO PSU, UP CAMPUS: ______

9. IN ADDITION TO TEACHING AG, OTHER CURRENT EMPLOYMENT:

Do you coach athletics?	_____ Yes	_____ No
Do you have other paid "extra duty"?	_____ Yes	_____ No
Do you have a part-time job away from school?	_____ Yes	_____ No
Do you work summers, full time away from school?	_____ Yes	_____ No
Do you own a business or production operation?	_____ Yes	_____ No

10. GENDER: ______ Male ______ Female

11. AGE: ______

12. MARITAL STATUS:
(Put an "X" in the most accurate response)
______ Never have been married ______ Divorced
______ Married ______ Widowed

13. NUMBER OF CHILDREN YOU HAVE UNDER 18 YEARS OF AGE: ______

14. ARE / WERE OTHER MEMBERS OF YOUR FAMILY TEACHERS?
(Put an "X" in each positive response)
_____ mother _____ father _____ sibling(s) _____ children

PART 2 PROFESSIONAL DEVELOPMENT PARTICIPATION

1. EMPLOYMENT STATUS:
(Put an "X" in each appropriate space for the year(s) that you taught ag)

	SCHOOL YEAR		
	86-87	87-88	88-89
Employed as an agriculture teacher			

2. PROFESSIONAL ORGANIZATION INVOLVEMENT
(Put an "X" in each appropriate space for the year(s) you were a dues paying member for the following professional organizations.)

	DUES PAYING MEMBER		
ORGANIZATION	86-87	87-88	88-89
Pennsylvania Vocational Ag Teachers' Assoc.			
National Vocational Ag Teachers' Assoc.			
Pennsylvania Vocational Association			
American Vocational Association			
Local Education Association			
Pennsylvania State Education Association			
National Education Association			
Phi Delta Kappa			
FFA Alumni Association			
American Federation of Teachers			
Other (please list)______________________			
______________________			

3. PROFESSIONAL DEVELOPMENT ACTIVITIES
(Put an "X" in each appropriate space for the year(s) that you participated in the following professional activities.)

	ATTENDED		
ACTIVITY	86-87	87-88	88-89
Summer Vo-Ag Teacher Institute			
Pennsylvania Vocational Education Conference			
PSU Ag Ed inservice			
Other "non-required" inservice			
PSU graduate courses			
Graduate courses other than PSU			
Other (please list)______________________			
______________________			

4. PROFESSIONAL/TECHNICAL JOURNAL SUBSCRIPTIONS REGULARLY READ:

1. ______________________________________
2. ______________________________________
3 ______________________________________
4. ______________________________________
5. ______________________________________
6. ______________________________________
7. ______________________________________
8. ______________________________________
9. ______________________________________
10. ______________________________________

PART 3 PROFESSIONAL ATTITUDE INVENTORY

The following statements are to be viewed in reference to the **Agriculture Teaching Profession**. To each statement, respond how you feel and behave.

	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
1. I systematically read the professional journals.	_____	_____	_____	_____	_____
2. Other professions are actually more vital than mine.	_____	_____	_____	_____	_____
3. I make my own decisions in regard to what is to be done in my work.	_____	_____	_____	_____	_____
4. I regularly attend professional meetings at the local level.	_____	_____	_____	_____	_____
5. I think that my profession, more than any other, is essential for society.	_____	_____	_____	_____	_____
6. My fellow professionals have a good idea about each other's competence.	_____	_____	_____	_____	_____
7. People in this profession have a real "calling" for their work.	_____	_____	_____	_____	_____
8. The importance of my profession is sometimes over stressed.	_____	_____	_____	_____	_____
9. The dedication of people in this field is most gratifying.	_____	_____	_____	_____	_____
10. I don't have much opportunity to exercise my own judgment.	_____	_____	_____	_____	_____
11. I believe that the professional organization(s) should be supported.	_____	_____	_____	_____	_____
12 Some other occupations are actually more important to society than is mine.	_____	_____	_____	_____	_____
13. A problem in this profession is that no one really knows what their colleagues are doing.	_____	_____	_____	_____	_____
14. It is encouraging to see the high level of idealism which is maintained by people in this field.	_____	_____	_____	_____	_____
15 The professional organization doesn't do much for the average member.	_____	_____	_____	_____	_____
16. We really have no way of judging each other's competence.	_____	_____	_____	_____	_____
17. Although I would like to, I really don't read the journals too often.	_____	_____	_____	_____	_____
18. Most people would stay in the.profession even if their incomes were reduced.	_____	_____	_____	_____	_____
19. My own decisions are subject to review.	_____	_____	_____	_____	_____
20. There is not much opportunity to judge how another person does their work.	_____	_____	_____	_____	_____
21. I am my own boss in almost every work-related situation.	_____	_____	_____	_____	_____
22. If ever an occupation is indispensable, it is this one.	_____	_____	_____	_____	_____
23. My colleagues pretty well know how well we all do in our work.	_____	_____	_____	_____	_____
24. There are very few people who don't really believe in their work.	_____	_____	_____	_____	_____
25. Most of my decisions are reviewed by other people.	_____	_____	_____	_____	_____

PART 4 PERCEPTION OF PROFESSIONAL DEVELOPMENT ACTIVITIES

Please indicate the extent to which you are currently in agreement or disagreement with each of the following statements by placing an "X" on the appropriate line. If you have additional comments, write in the space at the end of the section.

	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
1. AG ED INSERVICE COURSES (AG'S UP):					
Courses meet my needs	____	____	____	____	____
Scheduling is convenient	____	____	____	____	____
Quality of instructors is high	____	____	____	____	____
Courses are well advertised	____	____	____	____	____
I have a say in what is taught	____	____	____	____	____
Cost is reasonable	____	____	____	____	____
I like accruing of hours for credit	____	____	____	____	____
2. AG ED GRADUATE COURSES (UP CAMPUS):					
Courses meet my needs	____	____	____	____	____
Scheduling is convenient	____	____	____	____	____
Quality of instructors is high	____	____	____	____	____
3. AG ED GRADUATE PROGRAM:					
Advisors are available	____	____	____	____	____
Program info. is readily available	____	____	____	____	____
Admission procedures are clear	____	____	____	____	____
Program meets my needs	____	____	____	____	____
Program requirements are clear	____	____	____	____	____
4. AG ED SUMMER INSTITUTE:					
Speakers are stimulating	____	____	____	____	____
Workshops are relevant	____	____	____	____	____
Scheduling is convenient	____	____	____	____	____
UP Campus location is desirable	____	____	____	____	____
I prefer it be moved around the state	____	____	____	____	____
Cost is reasonable	____	____	____	____	____
I have a say in what happens	____	____	____	____	____
I prefer to receive graduate.credits	____	____	____	____	____
5. AG ED PROFESSIONAL ORGANIZATION (PVATA):					
Represents my concerns	____	____	____	____	____
Dues are realistic	____	____	____	____	____
I have a voice in decisions	____	____	____	____	____
Is influential in supporting ag ed	____	____	____	____	____
Has a good structure	____	____	____	____	____
Provides good professional activities	____	____	____	____	____
Organization operation is clear	____	____	____	____	____
Interacts effectively with other groups	____	____	____	____	____

THANK YOU FOR TAKING THE TIME TO HONESTLY ANSWER THESE QUESTIONS.

PLEASE RETURN IN THE ENCLOSED SELF-ADDRESSED ENVELOPE TO:

DAVID E. HALL
106 ARMSBY
UNIVERSITY PARK, PA 16802

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PROFESSIONAL DEVELOPMENT QUESTIONNAIRE
CODE BOOK

Variable	Card	Column	Description	Possible Responses
1	1	1-3	I. D. #	001 - 999
2	1	4	Card #	1
3	1	5-10	Date returned	111789 - 123199
4	1	11-12	Date high school degree	01 - 99, 00=no resp
5	1	13-14	Date associate degree	01 - 9, 00=no resp
6	1	15-16	Date bachelor's degree	01 - 99, 00=no resp
7	1	17-18	Date master's degree	01 - 99, 00=no resp
8	1	19-20	Date doctor's degree	01 - 99, 00=no resp
9	1	21	Currently pursuing degree	1=yes 2=no 0=no resp
10	1	22-23	Total years taught	01 - 99, 00=no resp
11	1	24-25	Total # of ag teachers	01 - 99, 00=no resp
12	1	26-28	Length of contract (days)	001 - 365, 000=no resp
13	1	29	FFA member	1=yes 2=no 0=no resp
14	1	30	District pays for institute	1=none 2=some 3=all 0=no
15	1	31	District pays for inservice	1=none 2=some 3=all 0=no
16	1	32	District pays for dues	1=none 2=some 3=all 0=no
17	1	33	District pays for credits	1=none 2=some 3=all 0=no
18	1	34	District pays for subscript.	1=none 2=some 3=all 0=no
19	1	35-37	Miles to PSU	001 - 999, 000=no response
20	1	38	Coach athletics	1=yes 2=no 0=no response
21	1	39	Other paid extra duty	1=yes 2=no 0=no response
22	1	40	Part-time job	1=yes 2=no 0=no response
23	1	41	Full-time summer job	1=yes 2=no 0=no response
24	1	42	Own a business	1=yes 2=no 0=no response
25	1	43	Gender	1=male 2=female 0=no resp
26	1	44-45	Age	01 - 99, 00=no response
27	1	46	Marital status	1=never 2=divorced 3=married 4=widowed 0=no
28	1	47-48	Children	00 - 50, 99=no response
29	1	49	Mother teaches	1=yes 0=no
30	1	50	Father teaches	1=yes 0=no
31	1	51	Sibling(s) teaches	1=yes 0=no
32	1	52	Child(ren) teaches	1=yes 0=no
33	2	1-3	I. D. #	001 - 999
34	2	4	Card #	2
35	2	5	Taught 86-87	1=yes 0=no
36	2	6	Taught 87-88	1=yes 0=no
37	2	7	Taught 88-89	1=yes 0=no
38	2	8	PVATA 86-87	1=yes 0=no
39	2	9	PVATA 87-88	1=yes 0=no
40	2	10	PVATA 88-89	1=yes 0=no
41	2	11	NVATA 86-87	1=yes 0=no
42	2	12	NVATA 87-88	1=yes 0=no
43	2	13	NVATA 88-89	1=yes 0=no
44	2	14	PVA 86-87	1=yes 0=no
45	2	15	PVA 87-88	1=yes 0=no
46	2	16	PVA 88-89	1=yes 0=no
47	2	17	AVA 86-87	1=yes 0=no
48	2	18	AVA 87-88	1=yes 0=no
49	2	19	AVA 88-89	1=yes 0=no
50	2	20	LEA 86-87	1=yes 0=no
51	2	21	LEA 87-88	1=yes 0=no

Variable	Card	Column	Description	Possible Responses
52	2	22	LEA 88-89	1=yes 0=no
53	2	23	PSEA 86-87	1=yes 0=no
54	2	24	PSEA 87-88	1=yes 0=no
55	2	25	PSEA 88-89	1=yes 0=no
56	2	26	NEA 86-87	1=yes 0=no
57	2	27	NEA 87-88	1=yes 0=no
58	2	28	NEA 88-89	1=yes 0=no
59	2	29	PDK 86-87	1=yes 0=no
60	2	30	PDK 87-88	1=yes 0=no
61	2	31	PDK 88-89	1=yes 0=no
62	2	32	FFA Alumni 86-87	1=yes 0=no
63	2	33	FFA Alumni 87-88	1=yes 0=no
64	2	34	FFA Alumni 88-89	1=yes 0=no
65	2	35	AFT 86-87	1=yes 0=no
66	2	36	AFT 87-88	1=yes 0=no
67	2	37	AFT 88-89	1=yes 0=no
68	2	38	Other 86-87	1=yes 0=no
69	2	39	Other 87-88	1=yes 0=no
70	2	40	Other 88-89	1=yes 0=no
71	2	41	Second other 86-87	1=yes 0=no
72	2	42	Second other 87-88	1=yes 0=no
73	2	43	Second other 88-89	1=yes 0=no
74	2	44	Summer Institute 86-87	1=yes 0=no
75	2	45	Summer Institute 87-88	1=yes 0=no
76	2	46	Summer Institute 88-89	1=yes 0=no
77	2	47	PVEC 86-87	1=yes 0=no
78	2	48	PVEC 87-88	1=yes 0=no
79	2	49	PVEC 88-89	1=yes 0=no
80	2	50	PSU inservice 86-87	1=yes 0=no
81	2	51	PSU inservice 87-88	1=yes 0=no
82	2	52	PSU inservice 88-89	1=yes 0=no
83	2	53	Other inservice 86-87	1=yes 0=no
84	2	54	Other inservice 87-88	1=yes 0=no
85	2	55	Other inservice 88-89	1=yes 0=no
86	2	56	PSU grad courses 86-87	1=yes 0=no
87	2	57	PSU grad courses 87-88	1=yes 0=no
88	2	58	PSU grad courses 88-89	1=yes 0=no
89	2	59	Other grad courses 86-87	1=yes 0=no
90	2	60	Other grad courses 87-88	1=yes 0=no
91	2	61	Other grad courses 88-89	1=yes 0=no
92	2	62	Other activity 86-87	1=yes 0=no
93	2	63	Other activity 87-88	1=yes 0=no
94	2	64	Other activity 88-89	1=yes 0=no
95	2	65	2nd other activity 86-87	1=yes 0=no
96	2	66	2nd other activity 87-88	1=yes 0=no
97	2	67	2nd other activity 88-89	1=yes 0=no
98	2	68-69	Subscriptions	00 - 10
99	3	1-3	I. D. #	001 - 999
100	3	4	Card	3
101	3	5	Attitude #1	1=SA 2=A 3=NO 4=D 5=SD
102	3	6	Attitude #2	1=SA 2=A 3=NO 4=D 5=SD
103	3	7	Attitude #3	1=SA 2=A 3=NO 4=D 5=SD
104	3	8	Attitude #4	1=SA 2=A 3=NO 4=D 5=SD
105	3	9	Attitude #5	1=SA 2=A 3=NO 4=D 5=SD

Variable	Card	Column	Description	Possible Responses
106	3	10	Attitude #6	1=SA 2=A 3=NO 4=D 5=SD
107	3	11	Attitude #7	1=SA 2=A 3=NO 4=D 5=SD
108	3	12	Attitude #8	1=SA 2=A 3=NO 4=D 5=SD
109	3	13	Attitude #9	1=SA 2=A 3=NO 4=D 5=SD
110	3	14	Attitude #10	1=SA 2=A 3=NO 4=D 5=SD
111	3	15	Attitude #11	1=SA 2=A 3=NO 4=D 5=SD
112	3	16	Attitude #12	1=SA 2=A 3=NO 4=D 5=SD
113	3	17	Attitude #13	1=SA 2=A 3=NO 4=D 5=SD
114	3	18	Attitude #14	1=SA 2=A 3=NO 4=D 5=SD
115	3	19	Attitude #15	1=SA 2=A 3=NO 4=D 5=SD
116	3	20	Attitude #16	1=SA 2=A 3=NO 4=D 5=SD
117	3	21	Attitude #17	1=SA 2=A 3=NO 4=D 5=SD
118	3	22	Attitude #18	1=SA 2=A 3=NO 4=D 5=SD
119	3	23	Attitude #19	1=SA 2=A 3=NO 4=D 5=SD
120	3	24	Attitude #20	1=SA 2=A 3=NO 4=D 5=SD
121	3	25	Attitude #21	1=SA 2=A 3=NO 4=D 5=SD
122	3	26	Attitude #22	1=SA 2=A 3=NO 4=D 5=SD
123	3	27	Attitude #23	1=SA 2=A 3=NO 4=D 5=SD
124	3	28	Attitude #24	1=SA 2=A 3=NO 4=D 5=SD
125	3	29	Attitude #25	1=SA 2=A 3=NO 4=D 5=SD
126	3	30	Perception #1	1=SA 2=A 3=NO 4=D 5=SD
127	3	31	Perception #2	1=SA 2=A 3=NO 4=D 5=SD
128	3	32	Perception #3	1=SA 2=A 3=NO 4=D 5=SD
129	3	33	Perception #4	1=SA 2=A 3=NO 4=D 5=SD
130	3	34	Perception #5	1=SA 2=A 3=NO 4=D 5=SD
131	3	35	Perception #6	1=SA 2=A 3=NO 4=D 5=SD
132	3	36	Perception #7	1=SA 2=A 3=NO 4=D 5=SD
133	3	37	Perception #8	1=SA 2=A 3=NO 4=D 5=SD
134	3	38	Perception #9	1=SA 2=A 3=NO 4=D 5=SD
135	3	39	Perception #10	1=SA 2=A 3=NO 4=D 5=SD
136	3	40	Perception #11	1=SA 2=A 3=NO 4=D 5=SD
137	3	41	Perception #12	1=SA 2=A 3=NO 4=D 5=SD
138	3	42	Perception #13	1=SA 2=A 3=NO 4=D 5=SD
139	3	43	Perception #14	1=SA 2=A 3=NO 4=D 5=SD
140	3	44	Perception #15	1=SA 2=A 3=NO 4=D 5=SD
141	3	45	Perception #16	1=SA 2=A 3=NO 4=D 5=SD
142	3	46	Perception #17	1=SA 2=A 3=NO 4=D 5=SD
143	3	47	Perception #18	1=SA 2=A 3=NO 4=D 5=SD
144	3	48	Perception #19	1=SA 2=A 3=NO 4=D 5=SD
145	3	49	Perception #20	1=SA 2=A 3=NO 4=D 5=SD
146	3	50	Perception #21	1=SA 2=A 3=NO 4=D 5=SD
147	3	51	Perception #22	1=SA 2=A 3=NO 4=D 5=SD
148	3	52	Perception #23	1=SA 2=A 3=NO 4=D 5=SD
149	3	53	Perception #24	1=SA 2=A 3=NO 4=D 5=SD
150	3	54	Perception #25	1=SA 2=A 3=NO 4=D 5=SD
151	3	55	Perception #26	1=SA 2=A 3=NO 4=D 5=SD
152	3	56	Perception #27	1=SA 2=A 3=NO 4=D 5=SD
153	3	57	Perception #28	1=SA 2=A 3=NO 4=D 5=SD
154	3	58	Perception #29	1=SA 2=A 3=NO 4=D 5=SD
155	3	59	Perception #30	1=SA 2=A 3=NO 4=D 5=SD
156	3	60	Perception #31	1=SA 2=A 3=NO 4=D 5=SD

Revised

PGSAS

ISP Research Conference
August 1-2, 1990

Wednesday, August 1, 1990
Room 112 Armsby

7:30 - 7:55	Set up in 112 Armsby
8:00 - 9:30	Research Review
9:30 - 10:00	Mentor Presentation

Mu'idah Bashir Phyllis Barner	*Quality of Air Within Homes*
Bob Boner Joy Dunbar Daryl Heasley	*Improving Leadership Skills*
Sabrina Boyer Pamela S. Russin	*A Comparison of Bedding Used for Lactating Sows*
Matthew D. Davis Richard Yahner Tim Kimmel	*Raptor Ecology*
Anna Gelman Peter Labosky	*Paper Properties of Recyclable Fibers*
Bill Golla Richard Yahner Colleen DeLong	*Impact of Small Mammals on the Regeneration of the Red Oak*
Jenna Hiestand Richard Craig David Hesk Ellen Heininger	*Host Plant Resistance in Regal Pelargoniums*
Billie Jo Hoover Gary Rogers Joan Cooper	*Repeatability of Physical Characteristics in Dairy Cattle*
Marie Kanagie J. R. Pratt Nancy Bowers	*Effects of Zinc and Atrazine on Aquatic Microbial Communities from Two Different Ecosystems*
Cathy Kobayashi Charles Boyer	*BicolorVariation in Cucurbita Pepo L.*
Ross M. Koenig Glenn Eberly	*Boar Testing Program*
Anne Ko Robert Beelman	*The Effects of Yeast Ghost and Ethylenediamine-Tetraacetic Acid (EDTA) as a Preservative to Extend the Shelf Life of Fresh Mushrooms (Agaricus bisphorus)*

Revised

Phillip Liaw Jack Schultz Heidi Appel	*The Effect of Tannin on the Gypsy Moth Virus*
John Lin Swamy Anantheswaran David Liu	*Microwave Field Distribution in a Standard One-Magnetron Microwave Oven*
Esther Long Dan Hagen	*In Vitro Maturation of Porcine Oocytes*
Jeanette Miller Marc Abrams	*Canopy Class Distribution in a Mature Mixed Oak Forest*
Larissa Minicucci Carolyn Burns	*Johne's Disease in Cattle*
Maureen L. Rottschaefer Stephen Fairweather	*Modeling Tree Growth*
Ann Ryan J. R. Pratt Nancy Bowers	*The Effects of Atramine on Aquatic Microbial Communities From Two Different Ecosystemes*
Tina Singer Richard Yahner	*Wildlife - Farmland Ecology*
Eric R. Snape Richard Yahner Tim Kimmel	*Falconry Working with Conservation*
Sven-Erik Spichiger Edwin Rajotte	*Comparison of Insect Populations in Different Environments*
Brian Jess Stairs Sheryn Bruso	*The Bacteria That Cause Mastitis*
Jared T. Stehr Greg Ziegler Yi Jen Liaw	*Examining a Fat Substitute with a Scanning Electric Microscope*
Tracy M. Szathmary Charles Boyer	*Chemically Induced Chromoplast Development in Squash*
Valerie Heather Weiss Peter Labosky	*Paper Properties of a Bleached Hardwood and Softwood Pulp*
Heather Young Diana Cox-Foster Mary Carol Rossiter	*A Developmental Study of Reproductive System of Female Gypsy Moth*

10:00 -	10:15	Break
10:15 -	12:00	Evaluation Activities 111 Tyson
12:00 -		Pickup materials in 112 Armsby

Appendix C

TABLES

Table C1. Current Age of Pennsylvania Agricultural Education Teachers. (N=215)

Current Age	Frequency	Percent	Cumulative Percent
22	1	.5	.5
23	3	1.4	1.9
24	2	.9	2.8
25	4	1.9	4.7
26	4	1.9	6.5
27	3	1.4	7.9
28	7	3.3	11.2
29	2	.9	12.1
30	5	2.3	14.4
31	8	3.7	18.1
32	14	6.5	24.7
33	8	3.7	28.4
34	4	1.9	30.2
35	8	3.7	34.0
36	6	2.8	36.7
37	2	.9	37.7
38	15	7.0	44.7
39	7	3.3	47.9
40	5	2.3	50.2
41	11	5.1	55.3
42	14	6.5	61.9
43	8	3.7	65.6
44	4	1.9	67.4
45	3	1.4	68.8
46	8	3.7	72.6
47	12	5.6	78.1
48	6	2.8	80.9
49	4	1.9	82.8
50	6	2.8	85.6
51	8	3.7	89.3
52	6	2.8	92.1
53	1	.5	92.6
54	2	.9	93.5
55	3	1.4	94.9
56	1	.5	95.3
57	4	1.9	97.2
58	1	.5	97.7
59	2	.9	98.6
60	2	.9	99.5
61	1	.5	100.0

Mean	40.158	Standard deviation	8.999
Median	40.000	Minimum	22.000
Mode	38.000	Maximum	61.000

Table C2. Total Years Pennsylvania Agricultural Education Teachers Have Been Teaching Agricultural Education, Including this Year. (N=215)

Years Teaching	Frequency	Percent	Cumulative Percent
1	5	2.3	2.3
2	10	4.7	7.0
3	5	2.3	9.3
4	7	3.3	12.6
5	12	5.6	18.2
6	7	3.3	21.5
7	4	1.9	23.4
8	5	2.3	25.7
9	7	3.3	29.0
10	10	4.7	33.6
11	11	5.1	38.8
12	5	2.3	41.1
13	9	4.2	45.3
14	10	4.7	50.0
15	11	5.1	55.1
16	8	3.7	58.9
17	4	1.9	60.7
18	8	3.7	64.5
19	7	3.3	67.8
20	10	4.7	72.4
21	5	2.3	74.8
22	6	2.8	77.6
23	5	2.3	79.9
24	1	.5	80.4
25	8	3.7	84.1
26	11	5.1	89.3
27	4	1.9	91.1
28	4	1.9	93.0
29	3	1.4	94.4
30	4	1.9	96.3
31	1	.5	96.7
33	2	.9	97.7
34	2	.9	98.6
36	1	.5	99.1
37	1	.5	99.5
38	1	.5	100.0
	1	Missing case	

Mean	15.150	Standard deviation	8.816
Median	14.500	Minimum	1.000
Mode	5.000	Maximum	38.000

Table C3. Total Number of Contract Days per Year as Reported by Pennsylvania Agricultural Education Teachers. (N=215)

Number of Days	Frequency	Percent	Cumulative Percent
180	12	5.6	5.8
181	2	.9	6.8
182	5	2.3	9.2
183	5	2.3	11.6
184	7	3.3	15.0
185	13	6.0	21.3
186	6	2.8	24.2
187	5	2.3	26.6
188	2	.9	27.5
189	2	.9	28.5
190	6	2.8	31.4
191	1	.5	31.9
193	1	.5	32.4
195	3	1.4	33.8
196	1	.5	34.3
197	2	.9	35.3
198	1	.5	35.7
199	2	.9	36.7
200	9	4.2	41.1
202	1	.5	41.5
203	1	.5	42.0
205	5	2.3	44.4
207	3	1.4	45.9
208	1	.5	46.4
210	8	3.7	50.2
211	1	.5	50.7
213	1	.5	51.2
214	1	.5	51.7
215	6	2.8	54.6
216	2	.9	55.6
218	1	.5	56.0
219	1	.5	56.5
220	19	8.8	65.7
223	1	.5	66.2
224	3	1.4	67.6
225	12	5.6	73.4
226	4	1.9	75.4
227	1	.5	75.8
228	2	.9	76.8
230	13	6.0	83.1
231	1	.5	83.6
232	1	.5	84.1
233	1	.5	84.5

Table C3. (continued).

Number of Days	Frequency	Percent	Cumulative Percent
235	3	1.4	86.0
240	25	11.6	98.1
244	1	.5	98.6
246	2	.9	99.5
247	1	.5	100.0
	8	Missing cases	

Mean	209.720	Standard deviation	20.961
Median	210.000	Minimum	180.000
Mode	240.000	Maximum	247.000

Table C4. Mileage from Pennsylvania Agricultural Education Teachers' Residence to The Pennsylvania State University, University Park Campus. (N=215)

Miles	Frequency	Percent	Cumulative Response
5	1	.5	.5
10	1	.5	1.1
18	1	.5	1.6
25	1	.5	2.1
26	1	.5	2.6
30	3	1.4	4.2
35	1	.5	4.8
36	1	.5	5.3
38	1	.5	5.8
40	1	.5	6.3
42	1	.5	6.9
45	3	1.4	8.5
50	5	2.3	11.1
52	1	.5	11.6
54	2	.9	12.7
55	3	1.4	14.3
60	4	1.9	16.4
65	2	.9	17.5
68	1	.5	18.0
70	2	.9	19.0
75	2	.9	20.1
80	4	1.9	22.2
84	1	.5	22.8
85	1	.5	23.3
90	9	4.2	28.0
95	3	1.4	29.6
100	18	8.4	39.2
103	1	.5	39.7
105	2	.9	40.7
106	2	.9	41.8
110	4	1.9	43.9
112	1	.5	44.4
115	1	.5	45.0
120	14	6.5	52.4
125	4	1.9	54.5
126	4	1.9	56.6
127	2	.9	57.7
130	4	1.9	59.8
132	1	.5	60.3
135	4	1.9	62.4
138	1	.5	63.0
140	4	1.9	65.1
144	1	.5	65.6
145	5	2.3	68.3

Table C4. (continued).

Miles	Frequency	Percent	Cumulative Response
150	17	7.9	77.2
151	1	.5	77.8
160	1	.5	78.3
170	5	2.3	81.0
172	1	.5	81.5
180	6	2.8	84.7
185	4	1.9	86.8
186	1	.5	87.3
190	1	.5	87.8
198	1	.5	88.4
199	1	.5	88.9
200	11	5.1	94.3
201	1	.5	95.2
205	2	.9	96.3
240	1	.5	96.8
250	3	1.4	98.4
270	1	.5	98.9
300	2	.9	100.0

Mean	122.873	Standard deviation	55.615
Median	120.000	Minimum	5.000
Mode	100.00	Maximum	300.000

Table C5. Calculated Participation Index for Pennsylvania Agricultural Education Teachers. (N=215)

Participation Value	Frequency	Percent	Cumulative Percent
.00	6	2.8	2.8
.67	2	.9	3.7
1.00	3	1.4	5.1
1.33	1	.5	5.6
1.67	4	1.9	7.4
2.00	4	1.9	9.3
2.33	3	1.4	10.7
2.67	4	1.9	12.6
3.00	10	4.7	17.2
3.33	5	2.3	19.5
3.67	4	1.9	21.4
4.00	6	2.8	24.2
4.33	4	1.9	26.0
4.67	7	3.3	29.3
5.00	9	4.2	33.5
5.33	3	1.4	34.9
5.67	10	4.7	39.5
6.00	18	8.4	47.9
6.33	6	2.8	50.7
6.50	1	.5	51.2
6.67	3	1.4	52.6
7.00	5	2.3	54.9
7.33	8	3.7	58.6
7.67	7	3.3	61.9
8.00	8	3.7	65.6
8.33	4	1.9	67.4
8.50	1	.5	67.9
8.67	4	1.9	69.8
9.00	5	2.3	72.1
9.33	4	1.9	74.0
9.67	5	2.3	76.3
10.00	10	4.7	80.9
10.33	6	2.8	83.7
10.50	1	.5	84.2
10.67	4	1.9	86.0
11.00	2	.9	87.0
11.33	4	1.9	88.8
11.67	2	.9	89.8
12.00	5	2.3	92.1
12.33	3	1.4	93.5
12.50	1	.5	94.0
12.67	1	.5	94.4
13.00	3	1.4	95.8
14.00	2	.9	96.7

Table C5. (Continued).

Participation Value	Frequency	Percent	Cumulative Percent
14.33	1	.5	97.2
14.50	1	.5	97.7
15.00	2	.9	98.6
16.00	1	.5	99.1
17.00	1	.5	99.5
18.33	1	.5	100.0

Mean	6.917	Standard deviation	3.651
Median	6.333	Minimum	.000
Mode	6.000	Maximum	18.333

Table C6. Professional/Technical Journals Regularly Read by Pennsylvania Agricultural Education Teachers. (N=215)

Number of Journals	Frequency	Percentage	Cumulative Percentage
0	68	31.6	31.6
1	28	13.0	44.7
2	29	13.5	58.1
3	26	12.1	70.2
4	13	6.0	76.3
5	12	5.6	81.9
6	12	5.6	87.4
7	9	4.2	91.6
8	3	1.4	93.0
9	4	1.9	94.9
10	11	5.1	100.0

Mean	2.702	Standard deviation	2.904
Median	2.000	Minimum	.000
Mode	.000	Maximum	10.000

Table C7. Professional/Technical Journals Reportedly Regularly Read by Pennsylvania Agricultural Education Teachers. (N=215)

Publication	Frequency	Percentage
A+ Insider	1	0.5
Acres	1	0.5
Agri Finance	1	0.5
Agricultural Research	9	4.2
Agriculture Consultant	1	0.5
Agronomy Journal	1	0.5
American Agriculturalist	3	1.4
American Biotechnology	1	0.5
American Demographics	1	0.5
American Education Weekly	1	0.5
American Educator	2	0.9
American Federation of Teachers Journal	2	0.9
American Forests	2	0.9
American Fruit Grower	2	0.9
American Greenhouse Grower	2	0.9
American Horticulturalist	1	0.5
American Nurseryman	11	5.1
American Vegetable Grower	7	3.3
Arbor Age	2	0.9
Arnoldia	1	0.5
Audubon	1	0.5
Beef Cattle Magazine	1	0.5
Biotech News	1	0.5
Brooklyn Botanical Garden Journal	1	0.5
Byte	1	0.5
Center Update	1	0.5
Chronicle of Higher Education	1	0.5
Computer News	1	0.5
Computer Shopper	1	0.5
Country Journal	1	0.5
Crops and Science	1	0.5
Dairy Herd Management	1	0.5
Dairy Management	1	0.5
Discover	1	0.5
Doane's Agricultural Report	3	1.4
Drover's Journal	2	0.9
Education Leadership	1	0.5
Education Today	1	0.5
Education Week	2	0.9
Environmental Science Journal	1	0.5
Extension Newsletter	1	0.5
Farm and Dairy	1	0.5
Farm Futures	2	0.9
Farm Journal	25	11.6
Farm Report	1	0.5

Table C7. (continued).

Publication	Frequency	Percentage
Farm Show Magazine	1	0.5
Farmer's Digest	2	0.9
Farmshine	8	3.7
FFA Alumni Newsletter	3	1.4
FFA Today	1	0.5
Fine Gardening	1	0.5
Florist	2	0.9
Florist Review	6	2.8
Flowers and Garden	4	11.2
Garden Center Retailer	1	0.5
Garden Scene	1	0.5
Greenhouse Grower	6	2.8
Greenhouse Manager	2	0.9
Grounds Maintenance	8	3.7
Grower Talks	5	2.3
Harvard Education Review	1	0.5
Hay and Forage Grower	1	0.5
HOAP Pilot	1	0.5
Hoard's Dairyman	21	9.8
Hog Farm Management	1	0.5
Holstein Journal	1	0.5
Holstein Profiles	1	0.5
Holstein World	2	0.9
Home Gardener	1	0.5
Home Handyman	1	0.5
Horticulture	12	5.6
Horticulture Science	1	0.5
Implement and Tractor	2	0.9
Industrial Educator	3	1.4
Interior Landscape Industry	1	0.5
Interior Scape	1	0.5
International Society of Arborculture Journal	1	0.5
Journal of Forestry	1	0.5
Journal of Soil and Water Conservation	3	1.4
Lab Animal Science	1	0.5
Lancaster Farming	16	7.4
Landscape Architecture	1	0.5
Landscape Maintenance	3	1.4
Landscape Manager	1	0.5
Landscape Trade Magazine	1	0.5
Learning	1	0.5
Lincoln Welding	1	0.5
MAC User	1	0.5
Magazine of Defenders of Wildlife	1	0.5
Mother Earth News	1	0.5
National Association of Secondary School Principals Bulletin	2	0.9

Table C7. (continued).

Publication	Frequency	Percentage
National Education Today	35	16.3
National Future Farmer (FFA New Horizons)	8	3.7
National Gardening	1	0.5
National Geographic	1	0.5
National Hog Farmer	1	0.5
National Vocational Agriculture Teachers' Association Newsletter	1	0.5
National Wildlife	2	0.9
Natural Greenhouse Industries	1	0.5
Natural History	1	0.5
New Farm Magazine	2	0.9
New York Times	1	0.5
Northern Logger	2	0.9
Nursery Business	1	0.5
Nursery Manager	1	0.5
Nursery Production	1	0.5
Nursery Trade Magazine	1	0.5
Outdoor	1	0.5
Pallet News	1	0.5
Penn State Agriculture	2	0.9
Pennsylvania Agricultural Education	43	20.0
Pennsylvania Farmer	29	13.5
Pennsylvania Farmers Association Report	1	0.5
Pennsylvania Flower Grower	1	0.5
Pennsylvania Forest	2	0.9
Pennsylvania Game News	4	1.9
Pennsylvania Horticulture Society Green Scene	1	0.5
Pennsylvania Nurserymen's Association	1	0.5
Pennsylvania School Board Journal	1	0.5
Pennsylvania State Education Association Voice	32	14.9
Pennsylvania Vocational Agriculture Teachers' Association Newsletter	2	0.9
Pennsylvania Wildlife	1	0.5
Phi Delta Kappan	6	2.8
Pollution Engineering	1	0.5
Popular Mechanics	1	0.5
Popular Science	1	0.5
Pork	1	0.5
Poultry Press	1	0.5
Prepared Foods	1	0.5
Principals Bulletin	1	0.5
Professional Floral Designer	2	0.9
Progressive Farmer	1	0.5
Register (Simmental)	3	1.4
Rodale's Organic Gardening	1	0.5
School and College	1	0.5
School Shop	5	2.3
Science of Food and Agriculture	1	0.5

Table C7. (continued).

Publication	Frequency	Percentage
Scientific American	2	0.9
Sheep	3	1.4
Shepherd	1	0.5
Southern Lumberman	1	0.5
Successful Farming	20	9.3
T.H.E. Journal	2	0.9
Teacher	3	1.4
The Agricultural Education Magazine	65	30.2
The Grower	1	0.5
The High School Journal	1	0.5
Veterinary News	2	0.9
Vocational Education Journal	13	6.0
Wall Street Journal	1	0.5
Welding Design and Fabrication	1	0.5
West Virginia Vocational Agriculture News and Views	1	0.5
Wood	1	0.5
Workbench	1	0.5

Table C8. Pennsylvania Agricultural Education Teachers' Professional Attitude Inventory. (N=215)

	Attitude										
Statement	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree		Mean
	N	%	N	%	N	%	N	%	N	%	%
1. I systematically read the professional journals.	12	5.6	39	18.1	40	18.6	96	44.7	28	13.0	3.41
*2. Other professions are not more vital than mine.	2	1.0	22	10.2	30	14.0	103	47.9	58	27.0	3.90
3. I make my own decisions in regard to what is to be done in my work.	1	0.5	19	8.8	13	6.0	138	64.2	44	20.5	3.95
4. I regularly attend professional meetings at the local level.	7	3.3	20	9.3	23	10.7	92	42.8	73	34.0	3.95
5. I think that my profession, more than any other, is essential for society.	0	0.0	37	17.2	30	14.0	100	46.5	48	22.3	3.74
6. My fellow professionals have a good idea about each other's competence.	6	2.8	42	19.5	26	12.1	118	54.9	23	10.7	3.51
7. People in this profession have a real "calling" for their work.	2	1.0	12	5.6	33	15.3	132	61.4	36	16.7	3.87
*8. The importance of my profession is never over stressed.	6	2.8	21	9.8	30	14.0	127	59.1	31	14.4	3.73
9. The dedication of people in this field is most gratifying.	0	0.0	29	13.5	32	14.9	132	61.4	22	10.2	3.68
*10. I have opportunity to exercise my own judgment.	1	0.5	13	6.0	12	5.6	145	67.4	44	20.5	4.01
11. I believe that the professional organization(s) should be supported.	2	1.0	6	2.8	29	13.5	107	49.8	71	33.0	4.11
*12 No other occupations are actually more important to society than is mine.	9	4.2	58	27.0	36	16.7	90	41.9	22	10.2	3.27
*13. A problem in this profession is that everyone really knows what their colleagues are doing.	16	7.4	73	34.0	23	10.7	96	44.7	7	3.3	3.02
14. It is encouraging to see the high level of idealism which is maintained by people in this field.	3	1.4	33	15.3	60	27.9	113	52.6	6	2.8	3.40

Table C8. (continued).

	Statement	Attitude										
		Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree		Mean
		N	%	N	%	N	%	N	%	N	%	%
*15.	The professional organization does much for the average member.	9	4.2	47	21.9	58	27.0	81	37.7	20	9.3	3.26
*16.	We really have a way of judging each other's competence.	9	4.2	59	27.4	40	18.6	99	46.0	8	3.7	3.18
*17.	Because I like to, I read the journals often.	14	6.5	78	36.3	25	11.6	84	39.1	14	6.5	3.03
18.	Most people would stay in the profession even if their incomes were reduced.	28	13.0	111	51.6	32	14.9	42	19.5	2	1.0	2.44
*19.	My own decisions are not subject to review.	11	5.1	135	62.8	28	13.0	39	18.1	2	1.0	2.47
*20.	There is opportunity to judge how another person does their work.	6	2.8	96	44.7	40	18.6	68	31.6	5	2.3	2.86
21.	I am my own boss in almost every work-related situation.	2	1.0	52	24.2	19	8.8	127	59.1	15	7.0	3.47
22.	If ever an occupation is indispensable, it is this one.	19	8.8	75	34.9	35	16.3	67	31.2	19	8.8	2.96
23.	My colleagues pretty well know how well we all do in our work.	1	0.5	53	24.7	44	20.5	105	48.8	12	5.6	3.34
24.	There are very few people who don't really believe in their work.	3	1.4	65	30.2	38	17.7	104	48.4	5	2.3	3.20
*25.	Most of my decisions are not reviewed by other people.	4	1.9	75	34.9	22	10.2	105	48.8	9	4.2	3.19

* Reworded to reflect a scale in the same order as the other statements with 1 being strongly disagree to 5 strongly agree.

Table C9. Pennsylvania Agricultural Education Teachers' Perceptions of Professional Development Activities. (N=215)

Statement	Perceptions										
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree		Mean
	N	%	N	%	N	%	N	%	N	%	%
1. AG ED INSERVICE COURSES (AG'S UP):											
Courses meet my needs	8	3.7	110	51.2	47	21.9	40	18.6	10	4.7	2.69
Scheduling is convenient	6	2.8	99	46.0	42	19.5	53	24.7	15	7.0	2.87
Quality of instructors is high	18	8.4	124	57.7	56	26.0	15	7.0	2	1.0	2.34
Courses are well advertised	16	7.4	114	53.0	42	19.5	41	19.1	2	1.0	2.53
I have a say in what is taught	11	5.1	122	56.7	59	27.4	19	8.8	4	1.9	2.46
Cost is reasonable	14	6.5	128	59.5	44	20.5	20	9.3	9	4.2	2.45
I like accruing of hours for credit	44	20.5	79	36.7	67	31.2	20	9.3	5	2.3	2.36
2. AG ED GRADUATE COURSES (UP CAMPUS):											
Courses meet my needs	4	1.9	51	23.7	120	55.8	26	12.1	14	6.5	2.98
Scheduling is convenient	4	1.9	45	20.9	114	53.0	31	14.4	21	9.8	3.09
Quality of instructors is high	16	7.4	65	30.2	128	59.5	5	2.3	1	0.5	2.58
3. AG ED GRADUATE PROGRAM:											
Advisors are available	12	5.6	62	28.8	119	55.3	18	8.4	4	1.9	2.72
Program information is readily available	11	5.1	64	29.8	119	55.3	16	7.4	5	2.3	2.72
Admission procedures are clear	10	4.7	55	25.6	123	57.2	20	9.3	7	3.3	2.81
Program meets my needs	3	1.4	49	22.8	137	63.7	21	9.8	5	2.3	2.89
Program requirements are clear	5	2.3	60	27.9	126	58.6	14	6.5	10	4.7	2.83
4. AG ED SUMMER INSTITUTE:											
Speakers are stimulating	14	6.5	110	51.2	80	37.2	9	4.2	2	1.0	2.42
Workshops are relevant	28	13.0	109	50.7	69	32.1	8	3.7	1	0.5	2.28
Scheduling is convenient	16	7.4	110	51.2	76	35.3	9	4.2	4	1.9	2.42
UP campus location is desirable	46	21.4	73	34.0	75	34.9	13	6.0	8	3.7	2.37
I prefer it be moved around the state	17	7.9	28	13.0	85	39.5	41	19.1	44	20.5	3.31
Cost is reasonable	33	15.3	105	48.8	73	34.0	4	1.9	0	0.0	2.22
I have a say in what happens	16	7.4	98	45.6	81	37.7	16	7.4	4	1.9	2.51
I prefer to receive graduate. credits	30	14.0	68	31.6	97	45.1	19	8.8	1	0.5	2.50

Table C9. (continued).

Statement	Perceptions										
	Strongly Disagree		Disagree		No Opinion		Agree		Strongly Agree		Mean
	N	%	N	%	N	%	N	%	N	%	%
5. AG ED PROFESSIONAL ORGANIZATION (PVATA):											
Represents my concerns	19	8.8	110	51.2	63	29.3	18	8.4	5	2.3	2.44
Dues are realistic	27	12.6	117	54.4	58	27.0	11	5.1	2	1.0	2.27
I have a voice in decisions	22	10.2	103	47.9	72	33.5	12	5.6	6	2.8	2.43
Is influential in supporting Agricultural Education	26	12.1	108	50.2	63	29.3	15	7.0	3	1.4	2.35
Has a good structure	16	7.4	98	45.6	81	37.7	14	6.5	6	2.8	2.52
Provides good professional activities	17	7.9	98	45.6	81	37.7	15	7.0	4	1.9	2.49
Organization operation is clear	11	5.1	88	40.9	78	36.3	31	14.4	7	3.3	2.70
Interacts effectively with other groups	7	3.3	73	34.0	104	48.4	23	10.7	7	3.3	2.76

Table C10. Calculated Attitude Index for Pennsylvania Agricultural Education Teachers. (N=215)

Attitude Value	Frequency	Percent	Cumulative Percent
60	1	.5	.5
65	2	.9	1.4
66	3	1.4	2.8
67	1	.5	3.3
68	2	.9	4.2
69	2	.9	5.1
70	2	.9	6.0
71	2	.9	7.0
72	2	.9	7.9
73	8	3.7	11.6
74	4	1.9	13.5
75	5	2.3	15.8
76	8	3.7	19.5
77	7	3.3	22.8
78	7	3.3	26.0
79	7	3.3	29.3
80	7	3.3	32.6
81	5	2.3	34.9
82	7	3.3	38.1
83	12	5.6	43.7
84	10	4.7	48.4
85	6	2.8	51.2
86	6	2.8	54.0
87	15	7.0	60.9
88	11	5.1	66.0
89	3	1.4	67.4
90	7	3.3	70.7
91	9	4.2	74.9
92	9	4.2	79.1
93	8	3.7	82.8
94	3	1.4	84.2
95	3	1.4	85.6
96	6	2.8	88.4
97	9	4.2	92.6
98	2	.9	93.5
99	2	.9	94.4
100	2	.9	95.3
101	4	1.9	97.2
104	2	.9	98.1
105	1	.5	98.6
106	1	.5	99.1
107	1	.5	99.5
109	1	.5	100.0

Mean	84.963	Standard deviation	9.263
Median	85.000	Minimum	60.000
Mode	87.000	Maximum	109.000

Table C11. Demographic Factors of Pennsylvania Agricultural Education Teachers Compared with the Professional Development Participation Index Using a t Test. (N=215)

Demographic Factor	Frequency	Mean	Standard Deviation	2-Tailed Probability
Former FFA member	117	7.47	3.83	.014*
Non FFA member	98	6.25	3.32	
Coaches athletics	27	6.19	4.31	.271
Does not coach athletics	184	7.03	3.58	
Paid extra duty	73	7.16	3.61	.553
No paid extra duty	135	6.84	3.72	
Part-time job	63	6.28	3.84	.096
No part-time job	147	7.20	3.58	
Full time summer job	38	5.06	3.22	.000*
No full time summer job	170	7.40	3.65	
Own a business	96	6.85	3.93	.720
Does not own a business	115	7.03	3.44	
Male	201	6.89	3.63	.734
Female	14	7.24	4.10	
Mother is/was a teacher	31	7.32	3.57	.511
Mother is/was not a teacher	184	6.85	3.67	

Table C11. (continued).

Demographic Factor	Frequency	Mean	Standard Deviation	2-Tailed Probability
Father is/was a teacher	25	8.02	4.11	.108
Father is/was not a teacher	190	6.77	3.57	
Sibling is/was a teacher	47	6.99	3.38	.872
Sibling is/was not a teacher	168	6.90	3.73	
Child is/was a teacher	13	9.56	4.42	.007*
Child is/was not a teacher	202	6.75	3.54	

* Significant at the $p \leq .05$ level.

Table C12. Demographic Factors of Pennsylvania Agricultural Education Teachers Compared with the Professional Development Participation Index Using a Correlation. (N=215)

Factor	Frequency	Correlation	2-Tailed Significance
Total years taught	214	.132	.053
Contract days	207	.435	.000*
Miles to PSU	189	-.138	.058
Age	215	-.038	.582
Children	212	-.098	.152

* Significant at the $p \leq .05$ level.

Table C13. Initial Regression Model of the Relationship of Demographic Factors and Professional Attitude Index with the Professional Development Participation Index of Pennsylvania Agricultural Education Teachers. (N=215)

Factor	b	Beta	Zero Order Correlation Coefficient	Partial Correlation Coefficient	Significant t
Child(ren) teaches	.705	.095	.180	.106	.167
District pays for subscript.	-.734	-.104	-.050	-.117	.125
Sibling(s) teaches	-.241	-.055	-.011	-.068	.373
Own a business	-.220	-.030	.026	-.034	.659
Children	.012	.032	.025	.038	.621
Father teaches	.512	.091	.105	.101	.189
District pays for institute	1.254	.201	.443	.187	.014
Coach athletics	1.068	.093	.042	.110	.151
Marital status	.869	.079	.030	.090	.242
Miles to PSU	.001	.020	.044	.025	.746
FFA member	.321	.043	.150	.051	.504
Other paid extra duty	-.103	-.013	-.044	-.016	.835
Total number of ag. teachers	-.022	-.027	-.162	-.029	.708
Gender	.207	.014	.013	.016	.830
Part-time job	-.488	-.059	.097	-.059	.441
Attitude index	.064	.157	.274	.180	.018
Currently pursuing degree	1.594	.187	.183	.190	.012
Mother teaches	.244	.047	.048	.053	.487
District pays for dues	-.634	-.064	.076	-.069	.367
Length of contract	.012	.145	.339	.150	.050
Highest degree earned	1.029	.176	.179	.182	.017
District pays for inservice	.299	.049	.289	.048	.529
District pays for credits	1.123	.133	.296	.125	.102
Full time summer job	.649	.065	.212	.061	.424
Age	-.146	-.354	-.057	-.211	.005
Total years taught	.106	.257	.106	.151	.048
(Constant)	-9.003				.040

Multiple R = .636
Multiple R^2 = .404
Adjusted R^2 = .313

df = 26, 170
F = 4.438
Significant F $\leq$ .001

Table C14. Final Multiple Regression Model of the Relationship of Demographic Factors and Professional Attitude Index with the Professional Development Participation Index of Pennsylvania Agricultural Education Teachers. (N=215)

Factor	b	Beta	Zero Order Correlation Coefficient	Partial Correlation Coefficient	Significant t
Father teaches	.737	.131	.105	.157	.031*
Highest degree earned	.797	.137	.179	.146	.045*
District pays for subscript.	-.933	-.132	-.050	-.159	.029*
Attitude index	.083	.202	.274	.232	.001*
Length of contract	.016	.189	.339	.201	.006*
Currently pursuing degree	1.301	.153	.183	.162	.026*
District pays for institute	1.754	.281	.443	.293	.000*
Age	-.128	-.310	-.057	-.197	.007*
Total years taught	.099	.242	.106	.146	.045*
(Constant)	-5.886				.045*

Multiple R = .600
Multiple R^2 = .360
Adjusted R^2 = .329
df = 9, 187
F = 11.668
Significant F = .000
* Significant at the .05 level